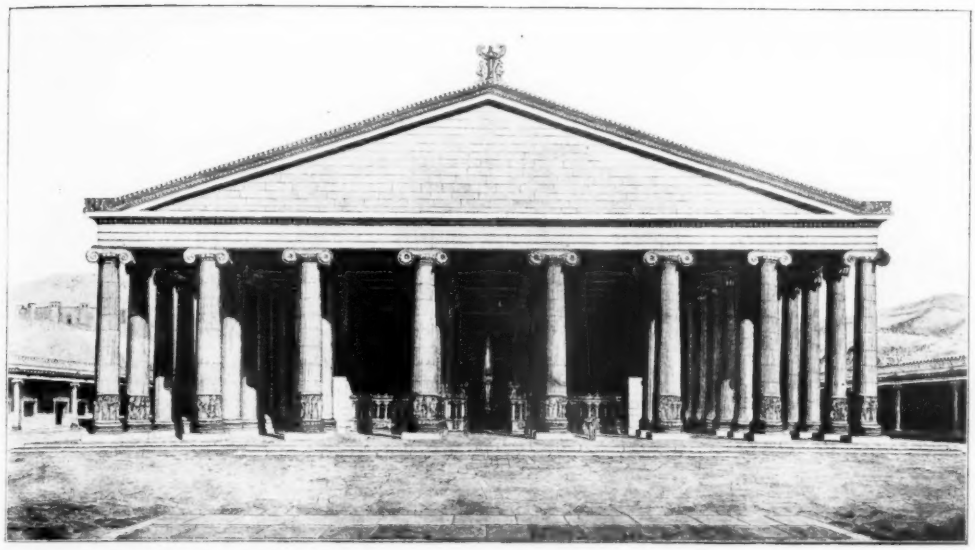


The Temple of Artemis (Diana) at Ephesus. Restoration of the Croesus (Sixth Century B.C.) Structure by Arthur E. Henderson, R.B.A., Architect to the British excavations at Ephesus

THE CROESUS (VITH CENTURY B.C.) TEMPLE OF ARTEMIS (DIANA) AT EPHESUS.*

By Arthur E. Henderson, R.B.A. [*Owen Jones Student* 1897].

IT is my purpose in this Paper to describe the actual remains found and the fragments remaining of the Croesus sixth century B.C. Temple of Artemis at Ephesus, which were uncovered and surveyed during the British excavations at Ephesus, directed by Mr. D. G. Hogarth, in the autumn of 1904 and the spring of 1905, and to place before the Meeting a suggested restoration.

Before proceeding to describe this particular temple it would be well to take a general survey of the Artemisia as revealed by these excavations [*see* Plate I.], namely, the three primitive structures designated *A*, *B*, and *C*, the Croesus (or Archaic) *D*, and the Hellenistic (or Great Temple of Diana) *E*. The drawing shows the complete survey I made and drew on the spot. The portions showing the primitive structures are reduced from a larger scale drawing.

Before I commenced the survey the late Dr. Murray, and after his death Dr. Cecil Smith, desired me to measure and examine carefully every marble fragment of the Croesus temple left in position, and this I believe has been carefully done, besides making full-size details of the architecture found. The Croesus pavement is about 6 metres (19 feet 8 inches) below the

* This Paper was read by the author at a General Meeting of the Institute on 19th November 1906, but publication had to be withheld pending the issue of the work then preparing for the British Museum dealing with the whole results of the excavations conducted by Mr. D. G. Hogarth on the site of the Ephesian Artemision. The volume is now published, and by the courtesy of the Trustees of the Museum reproduction to a reduced scale of some of the plates has been permitted for the present purpose. With the exception of the headpiece, the whole of Mr. Henderson's photographic illustrations on following pages appear in the British Museum volume, and the Institute is indebted to the Trustees for kindly lending the blocks. The discussion which followed the reading of the Paper, including some interesting remarks from Mr. Hogarth and Dr. Cecil Smith, will be found reported in the Journal for 24th November 1906.—Ed.

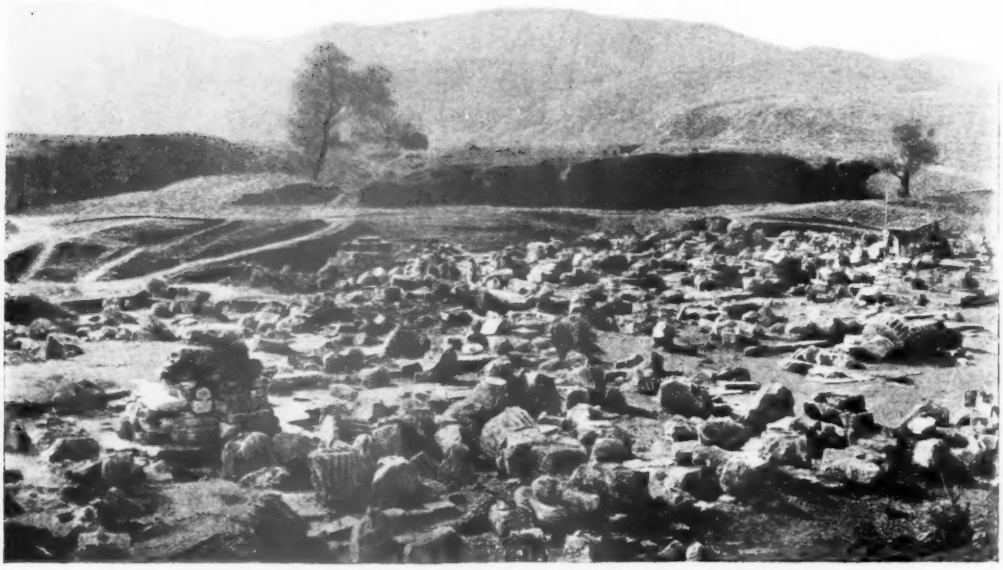


Fig. 1.—The Excavations from the North-east, before the primitive structures were uncovered.

general level of the fields. It is well shown in fig. 1, taken before the primitive structures were uncovered, and looking in a south-westerly direction—(the large pile of stones is a north-east column base, and the hut marks the situation of the south-west anta).

Fig. 2.—Pump at work exhausting the flooded site, April 1905.

The excavations included two campaigns, viz. in the autumn of 1904 and the spring of 1905. Fig. 2 shows the hopeless state the excavations were in before the commencement of the spring campaign, but by the aid of a powerful 12-inch centrifugal steam pump, belonging to the Aidin Railway Company, and by the supplementary use of a 3-inch hand pump the water was kept sufficiently under control, but not without a liberal amount of hand baling, which was always resorted to where explorations below the pavement level were taking place.

Reverting to Plate I. it will be seen that the Hellenistic first step and drain beneath the courtyard paving were traced for considerable distances on the north and east. They were found also on the south, but not at the west. Huge masses of Hellenistic piers to support the

steps were also uncovered; these at their inner ends rested on the Croesus pavement [fig. 3], and at their outer united with a continuous foundation extending to the drain mentioned above.

The pockets between these piers were the only portions of the Temple area not covered by a continuous foundation. These were filled with débris from the Croesus temple. Other Hellenistic foundations were two masses for the peristyle columns, an inner and an outer; also foundations lined the south side of the Croesus south cella wall, and large masses stood within the cella, greatly impeding the work of exploration. Nothing was found belonging to the Croesus temple beyond the inner faces of the Hellenistic foundation piers.

The remains which are still in position consist of almost the whole of the foundations, and patches of marble pavement. The steps and the foundations had been entirely cut away by the Hellenistic builders, excepting a small portion of foundation to the west of the perron, and the plinths of three columns, one of which has the lowest base still in position. Parts of the west and south walls with the south-west anta still remain, and also the eastern marble quoins to the central basis. Besides these, in the foundations of the cella were discovered what appeared to be a foundation for an inner colonnade.

FIG. 3.—Piers to support Hellenistic steps on the north side.

Large continuous masses of concrete (which Wood considered to be the foundations of a Byzantine church) composed of fragments of the Croesus, the Hellenistic temples, and Roman bricks, just within the cella wall on all sides, extending both below and above the level of the Croesus pavement, added greatly to the difficulty of the exploration of the cella, more especially so as explosives could not be used. One such mass, however, was useful, because moulded upon its surface was the inner face of the south-east angle of the cella wall, thus definitely giving the extent of the cella. This shows that the foundations of the Croesus temple were laid bare as early as late Roman or Byzantine times.

THE PRIMITIVE STRUCTURES.

On removing portions of this concrete, and of the Hellenistic and Croesus foundations, remains of three primitive structures were disclosed.

The earliest structure, Temple *A*, was represented by a small central basis built of squared green schist [fig. 4]; the blocks were bedded upon one another and used as facing to a solid yellow limestone interior. It was among these small stones that the majority of the electrum treasure was found, and just outside the northern third of the western face the greater part of the ivory objects were discovered, now exhibited in the British Museum and the Imperial Ottoman Museum, Constantinople. The lowest courses of the foundations extended to about 1 metre 80 centimetres (5 feet 11 inches) below the level of the Croesus pavement. Projecting westward from the basis and bonded into its foundations is a small T-shaped platform; joined to it further westward is another platform about the same size as the basis, both of yellow limestone.

The middle period, Temple *B*, entirely of yellow limestone, surrounds Temple *A* and

FIG. 4.—The Central Basis from the west, half excavated. In the central foreground, green schist wall of *A* with projecting foundation. On the right and left are seen in section the *B* and *C* thickenings; at the back the rough inner face of the *B* thickening, and some of the slab filling.

thickens the basis to the east, north and south. This structure had an outer wall on all four sides, but this has been greatly demolished by the laying of the Croesus foundations.

The last of these primitive structures, Temple *C*, again enclosed the basis and extended further westward. This also has an outer wall of much greater extent than that of the middle period. Fig. 5 shows the inner north-west angle of this enclosing wall. The wall was ashlar-faced, only the first course remaining in places—and it was built upon large slabs extending the full width of the wall, and below these rough foundations.

FIG. 5.—Inner north-west angle of *C* enclosure wall.

The northern and southern walls generally measured 1 metre 93 centimetres (6 feet 4 inches) in thickness, and the western was slightly thicker, viz. 2 metres 1 centimetre (6 feet 7 inches). The lateral walls extended westward, further than did the western wall, and give the appearance of a temple *in antis*. This feature could not be traced at the eastern end, although the eastern cross-wall was in position and in perfect preservation at the north-east inner, but broken away at the outer, angle. Another small foundation of this structure was discovered just within the foundations of the eastern cella wall of the Croesus temple.

It was extremely difficult to apportion all these different foundations and wallings on

account of their fragmentary condition and the nature of the soil, for when the heavy masses of Croesus foundations were removed water would instantly spring; and although the pumping was sufficient for general purposes, the examination and measuring were most difficult and arduous, having to be done groping in slime, with the water running out from every crevasse, bubbling up from the virgin sand below, and men incessantly baling.

THE CROESUS TEMPLE (*D*).—GENERAL.

In the course of the sixth century B.C. the Ephesians determined to replace the small Artemision then existing by a new temple of much greater dimensions and splendour, by the architects Demetrius and Paeonius—with a platform considerably over four times the area of the old building. As a comparison, one may imagine the replacing of a Saxon edifice by a Norman cathedral.

The last primitive structure, Temple *C*, the architects of which were probably Chersiphron and Metagenes, I suggest, was used while the Croesus temple structure was being built around it, and was only destroyed when the work was well in hand to make way for the construction of the cella. To support this theory we found a conduit, 60 by 30 centimetres (2 feet by 1 foot) in width and height, passing through the centre of the western cella wall a little more than a metre (3 feet 3½ inches) below the pavement at the western portal. On the inner side it started clear of the western wall foundations, close to the western wall of the *C* structure. A little lower than its floor level and to the west it was traced beneath the foundations of the pronaos for a considerable distance westward. The primitive "Basis" was still used as the central point, but the axial direction was slightly readjusted to 11° 35′ north of west and south of east, and was doubtless as near the true west-east direction as the architect could attain. Perhaps it was axial with the general direction of approach by sea or fixed by an astronomical observation.

The general dimensions of the remains *in situ* are:—The length from east to west of the marble pavement remaining, 108 metres 83 centimetres (*circ.* 330 feet); the total length from east to west, including the western perron (the platform at the western end), 117 metres 48 centimetres (384 feet); the width from north to south, 55 metres 10 centimetres (180 feet); the area covered, including the perron, approximately was about 6,211 square metres. I shall give the reconstructed dimensions later.

FOUNDATIONS.

Over all this area, wherever the foundations were removed, was found a bedding of white clay from 10 to 20 centimetres (4 to 8 inches) in thickness, and below this virgin river sand; but where older foundations occurred gravel had been laid on the clay bed to fill up holes, and the clay then spread to take the new foundations, all of which were of blue limestone quarried from Mount Prion hard by, with the exception of a few discarded marble paving-blocks.

The wall foundations were constructed before the other foundations; they spread out with footings to a depth of about 1½ metre (5 feet) beneath the pavement floor. The cella wall was considerably larger (the north and south walls projected to embrace a pronaos of large extent and a posticum), and entirely enclosed the outer wall of Temple *C*. The south cella wall measures 1 metre 92 centimetres (6 feet 4 inches), and its lowest course of footing 5 metres 20 centimetres (17 feet 1 inch) in diameter. These walls had five courses of foundations and were composed of fairly large stones, but with two thicknesses occasionally of small stones used as a course.

The foundation of the remainder of the structure was formed of three continuous layers of large stones to a depth of about a metre and a quarter (4 feet 2 inches) below the

pavement [fig. 6]. A fragment of the foundation for the steps was found at the western end of the perron ; the lowest bed was continued to carry the pavement of the courtyard.

Fig. 6.—Croesus Pavement and Foundations, seen in section in the south peristyle

There was a straight joint in the foundations within the cella, about 5 metres 97 centimetres (19 feet 7 inches) distant north and south from the cella walls, and a little eastward of the basis, which had a facing inwards, and was composed of small coursed stones, about sixty to seventy centimetres (2 feet to 2 feet 4 inches) in thickness, and bonded into the large foundations at the rear. This probably supported an inner colonnade, or possibly it was a temporary facing to the foundations, allowing the central portion to be filled in later—shown in fig. 7—it was built upon the lowest courses of Temple *B*, and the walling shown low down and parallel to the facing is a fragment of Temple *C*.

The central basis was free from the paving foundations—it rose to a sufficient height, and doubtless was considered substantial enough to carry the cult statue.

Fig. 7.—Fragment of *C* inner enclosure on south-west (under the man's feet). *D* foundations continuing it on left, and foundations of *D* cella. South wall in background.

Fig. 8 is taken from the north-east, and shows the marble quoins, yellow limestone courses between, and one stone of the topmost of the three foundation courses abutting against it to the north. No marble quoins were discovered at the western end, as the walling had been much disturbed, but Hellenistic foundation blocks were found placed upon it.

PAVING.

The topmost course of foundations was very level on its upper surface, facilitating the laying of the marble floor, which naturally varied in thickness, averaging twenty centimetres (eight inches) in thickness, rough on the underside and three-fourths up the sides—the upper one-fourth worked to a true and even surface to fit its neighbour—the top surface was worked

smooth. The slabs are of various shapes, having been cut, not to a pattern, but to the form which in each particular case entailed the least waste of material. Hardly any are even approximately square, though many have but one corner cut away. The majority of those which survived were of keystone shape. The polygonal slabs were, in most cases, the smaller, used for filling interstices, and even-shaped slabs occurred, with the inner angle filled with a small block.

Where columns were destined to stand, larger paving slabs than those ordinarily used were laid down. To this use of larger and therefore better slabs under the base plinths is due the

FIG. 8.—The Basis from the North-east. Marble quoin of Croesus period in foreground, and *C* walling to left of it (the *B* wall behind cannot be seen) ending in another marble quoin. On extreme left is a Croesus pavement foundation block.

fact that in all but four cases the pavement which supported columns has been removed wholly by later builders, while much of the outer column slabs has been left in position. The position of the columns can be roughly distinguished by their gaps. No special foundations were put in under the columns, the usual three layers of foundation blocks being considered sufficient to support the weight. As will be noticed later, however, these have not always fulfilled the expectation. The pavement ran under all walls, the slabs being usually laid lengthwise, under the line of wall; but even there the arrangement was not very symmetrical, no effort being made to secure uniformity of dimension or parallelism of sides.

All the pavement surface would appear to have been left rough in the first place until the superstructures had been bedded upon it, then the exposed portions were levelled and

worked to a smooth face. In certain places the faint dividing line between the rough and smooth indicates the position of a vanished superstructure. Three small T-shaped incisions occur in the pronaos pavement, nearly on a line with the third rank of columns from the western end—these were obviously sockets for marble or metal uprights.

From the levels taken of the surviving patches of pavement, it appears that the whole floor of the peristyle sloped slightly from the cella walls outwards to the edges of the platform, and increasing to the extreme angles; but owing to the numerous settlements of the platform, caused first by the weight of the Croesus superstructure, and afterwards by that of the increased height and weight of the Hellenistic temple, the original gradients can only be approximately correct. The slope from the cella wall to the outside edge of the platform works out to 15 centimetres (6 inches), with a further fall of 30 centimetres (1 foot) at the four angles.

THE WALLS.

The north wall has been entirely removed, but its inner line can be traced on certain surviving slabs of pavement.

The east wall has also perished, but its position is defined by a mass of concrete at the south-east angle, and a portion of its western foundations were uncovered in the axis of the temple.

The eastern extension walls and antæ have entirely disappeared, together with the majority of their foundations.

The south wall has left more traces, and a short length of it actually survives in position.

At a point about 35 metres (115 feet) from the south-east angle is a portion of the plinth and three courses of the wall. Byzantine concrete abutted on the inner face, cementing it in position, and Hellenistic foundation blocks of blue limestone abutted against the outward face. Thus the whole width of the plinth course survived, and the facing blocks of the course above with a portion of the inside filling, as shown in fig. 9. The thickness of the wall was 1 metre 93 centimetres (6 feet 4 inches), and the plinth 1 metre 98 centimetres (6 feet 6 inches). The prolongation of the walls to the west of the western cross wall survives at the south-west anta, namely, that of the plinth course and one block of walling only. Hellenistic foundations encase this on three sides, and rise to a height of about 1 metre 92 centimetres (6 feet 4 inches). A fragment of the west wall of the cella survives, between the western portal and the north wall. The south-eastern corner marks the return for the doorway. Only the plinth course and one block of the superstructure remains, as shown in fig. 10.

Fig. 9.—South Wall of Croesus Cella seen in section from the west. Facing courses on either side, and space for core between. Hellenistic foundation courses to the right, and Byzantine concrete on left.

The thickness of this wall is 2 metres 1 centimetre (6 feet 7¼ inches), of the plinth 8 centimetres (3 inches). This excess in the thickness to the west of the lateral walls carries on the tradition of the preceding Temple *C*.

Presumably the reason for strengthening the west wall is to be found in the fact that it was interrupted by the great door, or that it rose higher and supported the main weight of the roof. It is, however, curious that, nevertheless, its lowest foundations are not so broad as those of the south wall. This portion of walling had settled very considerably, especially at its northern end—the gradient being as much as 15 centimetres (9 inches) in a length of 4½ metres (14 feet 9 inches).

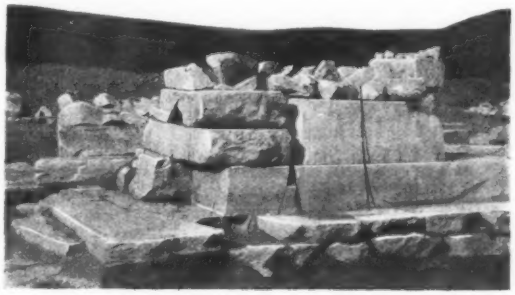


Fig. 10.—Northern Fragment of West Wall of *D* Cella, showing reveal of doorway.

REMAINS OF COLONNADE.

Four portions of the colonnade of the peristyle remain—two inner and two outer. Of the inner row the plinth and lower base remain *in situ* of the fifth column from the eastern end of the northern rank. This is encased by foundations—mostly of marble, from the Croesus temple—of the Hellenistic temple, which carry the paving, plinth, and lower base of a Hellenistic column, as shown in fig. 11. A large fragment of corona and a small fragment of a capital were among the foundation blocks.

The third plinth of the inner rank in the south peristyle from the west end still survives, badly cut about and surrounded by Hellenistic foundations; the plinth is in two pieces, which were joined by dowelled mortices.

Of the outer row only a half plinth of the third column, on the south side, from the west end remains. Presumably Croesus remains of the eleventh outer column of the south peristyle from the west end would be found if the Hellenistic foundations surrounding it were to be removed. It was upon this Hellenistic foundation that Wood found the fine base now in the British Museum. I found that the Croesus pavement upon which this foundation stands was very considerably out of level. The Hellenistic builders started to correct this, and even at the present time the top courses of this foundation were perfectly level, thus conclusively showing that the Croesus temple settled before the Hellenistic structure was superimposed.

Fig. 11.—North-east Column Base. Croesus plinth and lower base built over with Hellenistic foundations. The Croesus pavement is shown to the left, and the Hellenistic is the third from the top.

MARBLE AND COLOURING.

The marble used was quarried near Kos Bunar, about seven miles (from the site) up the Cayster Valley, and is of a highly crystalline variety, white in colour generally, but here and there slightly tinged with blue patches and veins. Where salts have affected inferior blocks the surface has disintegrated to the consistency of crystalline sand, and crumbles at a touch. The surfaces of the blocks which were not used for walling were brought to a smoothly rubbed finish, but not polished. The walling was hammer-finished and tooled at the edges, the arris often taken off. The bearing surfaces of column-drums were worked completely before being adjusted, and not ground against each other when in position.

These bearing surfaces retain traces of a red mastic. This colouring would not have been visible when in position; therefore it must have been applied when the masons wished to test the smoothness of the surfaces.

On other architectural fragments traces of colouring intended to be decorative can be detected. A white mastic seems to have been used in some cases as a ground, the marble being slightly absorbent. The colours applied thereon were a pure rich blue (observed on surfaces which were newly exposed and therefore damp) and more frequently a rich red. Several fragments of dart-and-leaf moulding showed faded yellow and brown, which may be decayed remains of bright yellow and dark red.

FIG. 12.—B, Usual Torus (or upper base). A, Centre of Volute.

ARCHITECTURAL DETAILS FOUND.

BASES.—As was mentioned before, within the north-east pile of Hellenistic foundations, as seen in fig. 9, is a circular drum-shaped base (three orders of double astragals between two filleted scotias) placed above a square plinth. The plinth is about one foot in height and projected slightly from the base above. Comparing this plinth with the two others *in situ*, I have come to the conclusion that the inner rank had only a slight projection from the circular base, and the outer rank had rather more of a projection. [See Plates II. and IV.] Numerous fragments of varieties of moulded torus or upper base were found, and appear to have been always bedded upon the lower base. The most common type is the parabolic torus, which is enriched by shallow, narrow flutings separated by small V-shaped grooves, clearly shown in fig. 12, and in Plates II. and V. (Bases 1, 2, and 4 j). A very attractive torus is that shown in fig. 13 and Plate II. (base 3). The upper part of its surface is treated in a different manner from the lower. The upper is light and graceful, while the lower is massive and substantial. This effect is produced by the lower portion having convex reedings instead of flutings. A more simple variety of the same style of torus is shown on the left hand of fig. 14, and Plate II., base 4 d. Another variety has large and small flutings alternately. It is shown in Plates II. and V., base 4 c. Three varieties of filleted leaf-and-dart torus constitute yet another addition to the known bases. The one marked A [in fig. 14] is also shown in Plates II. and V., base 5. Bases 6 and 7 are in the British Museum. Base 6 [Plates II. and V.] is from a very small fragment of its lower portion, the first astragal of the lower base being worked with it. Base 7 [Plates II. and V.] is that now placed above the sculptured drum in the Ephesus room. I consider this

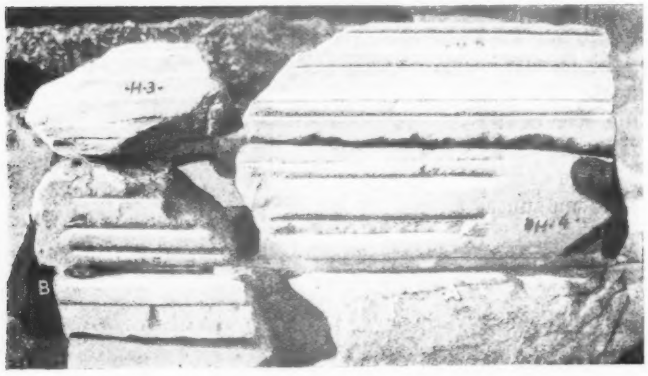


FIG. 13.—A, An attractive type of Torus. B, A simpler form of the same character.

to be most certainly a torus base, to come below the sculpture as shown in Plates IV. and V., and not above, as in that position it destroys the line of shaft and is too bold in contour for the fine sculpture below. The joint line between the top of the torus and the lowest drum was sometimes below and sometimes above the lower astragal of the shaft, as shown in fig. 15 and Plate II., bases 1 and 2.

FIG. 14.—Leaf-and-dart Enrichments. A, Lower portion of torus base. The two fragments at the top are abacus enrichments.

SHAFTS [Plate II.].—Twenty fragments of shafts were studied and plotted; fourteen were found to give forty-four flutings to the circumference, three gave forty flutings, and three gave twenty-four narrow and twenty-four wide flutings. Those giving forty were of a comparatively narrow diameter, and I consider they belonged to the inner rank. The flutings are very shallow, and of elliptical section: they show a sharp arris and are not separated by fillets. Besides several in the British Museum, two good fragments of the uppermost drums were studied. One example has a large astragal and the other a small one, both enriched by pearl and double reel [Plate III.]. The apophyges in all cases were different in curvature, and the necking from which the enriched astragal springs is, in some cases, perpendicular, but more often battering outwards or cut inwards.

CAPITALS.—Several varieties of abacus were found, always enriched either by a filleted leaf and dart, as shown at the top of fig. 14, or egg and dart [Plate III.]. There were at least three distinct varieties of leaf and dart. The leaf in every case is divided into two halves by an arris, and each side is concave in section and very similar to the torus bases. The fillet binding the leaf is generally shield shape, sometimes curving outwards and sometimes inwards. In two fragments the leaf and dart both run down and die into the horizontal astragal above the saddle uniting the volutes. The egg-and-dart designs also vary. The egg portion really is not of that shape, as will be seen by a glance at fig. 18 and Plate III. These eggs are bounded by astragals which abut one against another for about two-thirds of their depth. The astragals afterwards form a loop supporting the egg. The top of the egg is cut off flat, shortly after it begins to recede inwards.

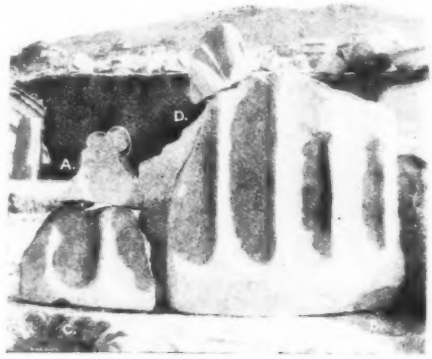


FIG. 15.—Portions of two lowest drums of shafts. C has no astragal, B has had one, now broken away. A is a small section of a volute.

A fine fragment of echinus was found embedded in one of the pockets between the Hellenistic piers on the south side [fig. 16 and

Plate III.]. It is broken off right through the centre line, and it shows three complete eggs to the left hand, the third being partly covered by the palmette springing from the junction of the roll of the volute, and the roll uniting the two volutes immediately above the echinus. It will be seen by the photograph to what a great extent the echinus projects from the superior part of the capital [see section Plate V.]. The volute capital shown in Plate III. was compiled from many fragments. The plan looking up shows that the double astragals of the pulvinars are in line with the rolls round the eggs of the echinus, and as these eggs are convex, concave scotias unwind exactly from them, thus showing how the concavity of the Ionic pulvinar was arrived at.

Fig. 16.—Echinus and Springing of Palmette.

The astragals of the pulvinars, however, do not always spring from the echinus, but loop round one towards another, and small darts spring from the diverging point: in the one shown on Plate V. double loops will be seen. When the fragments of the volutes were put together it was found that a true unwinding proportional spiral, easily set out, was the result.

It will be seen by the side elevation, Plate V., that the faces of the pulvinars had an appreciable batter outwards, towards the top, which served an optical purpose, in some degree counteracting the foreshortening of the convolutions of the spirals, as observed from the courtyard. It may be interesting to mention that generally in Hellenistic times the volutes were not true unwinding spirals, but were larger in proportion from the centre downwards and shorter upwards. A beautiful small capital, shown in fig. 17, is built into one of the piers of the old Byzantine aqueduct, near its eastern end, and may have adorned the nave, or more probably the cloister precinct. The restoration of the floral capital [shown on Plates III. and V.] is a variation of the one set up by Dr. Murray; the echinus is from a fragment (with restoration) in the Museum; the rosette is of the made-up capital, but with the leaves pointed, the abacus is given leaf and dart enrichment, to be in keeping with the design.

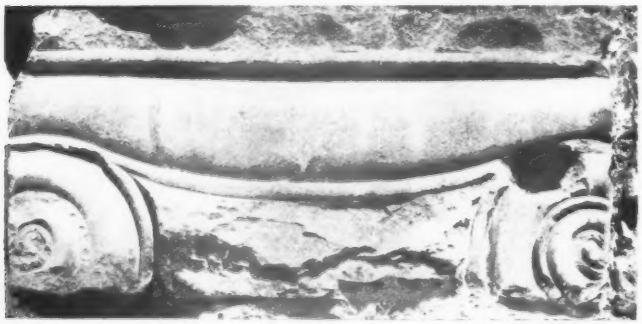


Fig. 17.—Small Capital built into Aqueduct.

On Plate V. will be seen one I have called "Capital of inner order of peristyle" on account of its smallness in size: it is the other capital erected in the Museum, but with the pulvinar and the palmette rearranged.

Entablature.—Nothing that could have rested directly on the capitals, such as even a fragment of architrave, was found, but three fragments of continuous egg-and-dart pattern were studied, which look very much like bed-moulds of a cornice. One built into a Turkish

tomb near the temple site [fig. 18 and Plate III.] is used in the restoration plates, IV. and V. One of a larger size in the Museum might possibly have run round the cella wall.

A large block of cornice corona was found built into the foundation of the north-east Hellenistic column foundation [Plate III.]. The hollowing out of the soffit was continuous. Another small fragment was found, as far as it went, to correspond with the large fragment. I took a paper mould of the bed-mould built into the mosque tomb, and a casting has been made from this and also a replica in plaster of the corona. These have now been cast and placed in juxtaposition. Portions of the sculptured cymatium gutter came to light, and several fragments of lion-headed gargoyles. Both the face of the corona and the cymatium gutter had a batter forward. A portion of what might be the tympanum (unsculptured) gave the angle of the pediment.

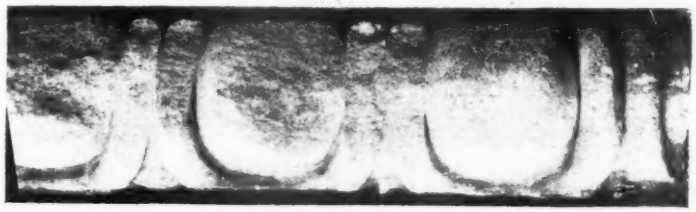


Fig. 18.—Portion of Bed-mould built into Mosque Tomb.

Roof.—The terra-cotta fragments of tiles [Plate II.] found on the site came from two distinct strata. Those found in the pockets of the Hellenistic piers were of the Croesus periods. No one completed length or width came to light, but only small fragments: these comprised top and bottom corners and sides, besides portions of the cover tiles. This pattern of tiling is evidently suited to a low-pitched roof, and it would bear comparison with many of the "one-thickness" tile designs of the present time. The marble parapet must have protected the lower part of the roof from the sudden storms which sweep down from the mountains in the locality.

Such was the material found for the study of the structure commenced about 550 B.C., dedicated 430 B.C., and destroyed by fire in 356 B.C.

RESTORATION.

In making the restoration of the Croesus fabric [Plate IV.] I have been governed by the remains still in position and by the architectural fragments found. The principal remains in position are—

1. Numerous patches of paving in the peristyle and pronaos which indicate the portions where there were no columns, and generally give the area of the temple and level of the floor.
2. A portion of paving to the north giving the boundary of the peristyle platform.
3. A sinking in a portion of the foundation evidently intended to receive the step at the west end of the peristyle, just north of the perron projection.
4. Foundations of steps at the west end of the perron.
5. Markings in the pavement showing the position of the inner plinth course of the north cella wall.
6. The inner foundation courses of the east cella wall at its centre.
7. The mould of the inner faces of the east and south cella walls near their junction, preserved by a mass of Byzantine concrete.
8. Various fragments of the south cella wall, which give the height and thickness of the plinth course and the thickness of the wall, with other portions of the walling extending to the south-west anta.
9. A portion of the west cella wall which preserves the inner reveal of the west portal, the height and thickness of the plinth course, and the thickness of the wall.

10. Three foundation facings within the cella.

11. The damaged plinth and lower base of the fifth column from the east in the inner row of the north peristyle.

12. The large mass of Hellenistic column foundation near the centre of the outer row in the south peristyle, probably inclosing the tenth column base from the east.

13. The mutilated plinth of the third column from the west, in the inner row of the south peristyle, directly south of the south-west anta.

14. Half the plinth of the second column from the west, in the outer row, directly south-west from the preceding.

15. Three T-shaped dowel holes in the pronaos paving between the west antæ.

16. The piers which supported the steps of the Hellenistic temple; these give the spacings of as many as seventeen of the columns in the north, and of seventeen in the south peristyle.

The principal elements of which no indications exist are—

(*a*) The continuation of the north and south cella walls forming the posticum.

(*b*) The eastern portal.

(*c*) The facing columns of the eastern and western façades.

(*d*) The columns of the pronaos, posticum, and cella.

(*e*) Heights above base of shafts.

No foundations of walls other than those already mentioned were found, and therefore no other walls are shown in the restoration.

The length of the platform without the step is 109 metres 20 centimetres (358 feet 4 inches), and the width 55 metres 10 centimetres (180 feet 11 inches). It is, roughly calculated, twice as long as broad. The tread of the step is 36 centimetres (1 foot 2⅕ inches). The perron at the west adds 8 metres 20 centimetres (26 feet 11 inches) to the length, and its breadth has been made the width of the plinth of the four central columns, viz. 25 metres 10 centimetres (83 feet 4¼ inches).

I have given to the peristyle pavement a fall of 20 centimetres (8 inches) from the walls to the steps, and a further fall of 23 centimetres (9 inches) to the angles. The east and west cella walls are not in line with the centres of any columns in the north and south peristyle.

In distributing the columns I have relied on the statement of Pliny (V. H. xxxvi. 14) as usually interpreted, namely, to the effect that there were 127 columns in all, of which 36 were sculptured. These I have distributed as follows:—

In the peristyle, including the columns "in antis"	100
In the pronaos	6
In the posticum	2
In the cella	19

Concerning the 106 columns in the peristyle and pronaos, there can be little doubt but that those in the posticum and the 19 in the cella are not proved by indication *in situ*.

A double row of nine columns is suggested, extending the whole length of the cella. The spacing has been made at architrave level, the columns thus dividing ten squares of ceiling in the north and south aisles respectively, and the same number of double squares in the nave. Of these columns thirteen are placed upon the faced foundations before described. The hall formed to the east of this may have been shut off by a marble screen or bronze grille from the western portion. The column which I place in the centre supplies a reason for the cross-foundation eastward of the basis, and also would have formed a most satisfactory background for the statue of the goddess erected upon the central basis. All these columns are shown the same in character as those to the inner row of the peristyle.

The intercolumnar measurement in both ranks of the lateral peristyle (except for the two

terminal intervals in each row at either end) I compute at about 5 metres 21 centimetres (17 feet 1 inch) centre to centre. From the centre line of the cella wall to the centre of the inner columns of the peristyle is 6 metres 13 centimetres (20 feet 1½ inches), and from the centre of the inner columns to the centre of the outer columns is 6 metres 12 centimetres (20 feet 1 inch). The two terminal intervals at each end of both rows in the lateral colonnade measure 5 metres 90 centimetres (19 feet 4½ inches), and this intercolumniation holds good, of course, between two rows in the west and east façades. No remains were found to fix the position of the pronaos columns. Direct evidence therefore is lacking for the suggested spacing of the

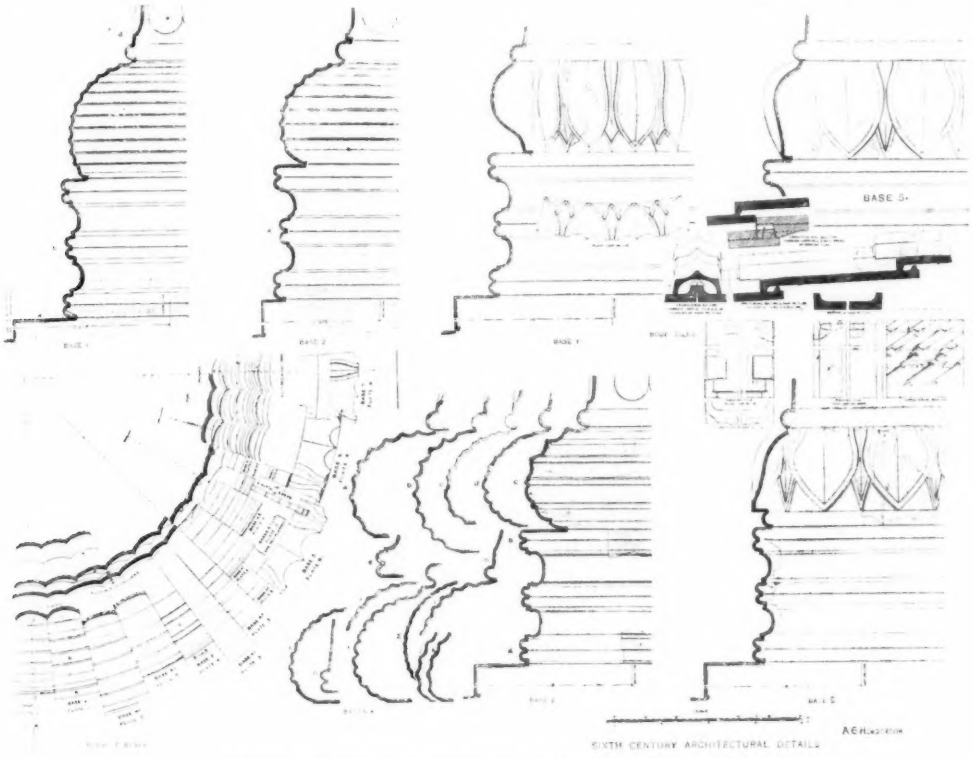


PLATE II.—DETAILS OF BASES, FLUTINGS, AND TILES.
Reduced from *British Museum Excavations at Ephesus.*
[NOTE.—The scale as shown is about $\frac{1}{20}$th of an inch short.]

two central rows. The method I have adopted for determining this has been to place the centre of a column between the two T-shaped dowel holes to the south of the north-west anta. These dowel holes may have held in position a bronze grille or marble screen, intended to prevent the violation of the temple. By thus placing the column I get a measurement of 7 metres 25 centimetres (23 feet 9½ inches) from the centre of the north cella wall to the centre of the northern row of pronaos columns, and an intercolumnar interval between the two pronaos rows of 8 metres 57 centimetres (28 feet 1½ inch) centre to centre.

As the pronaos and posticum colonnades extend into the eastern and western façades, these last two dimensions apply also to the three central intercolumniations in both rows of those façades.

The thirty-six sculptured drums I have distributed in the following manner:—

At the eastern end	10
At the western end	10
In the pronaos	10
In the posticum	6

In this manner the magnificence of the terminal façades stands in marked contrast to the plainness of the lateral façades, and there is a superb processional approach to the cella. The

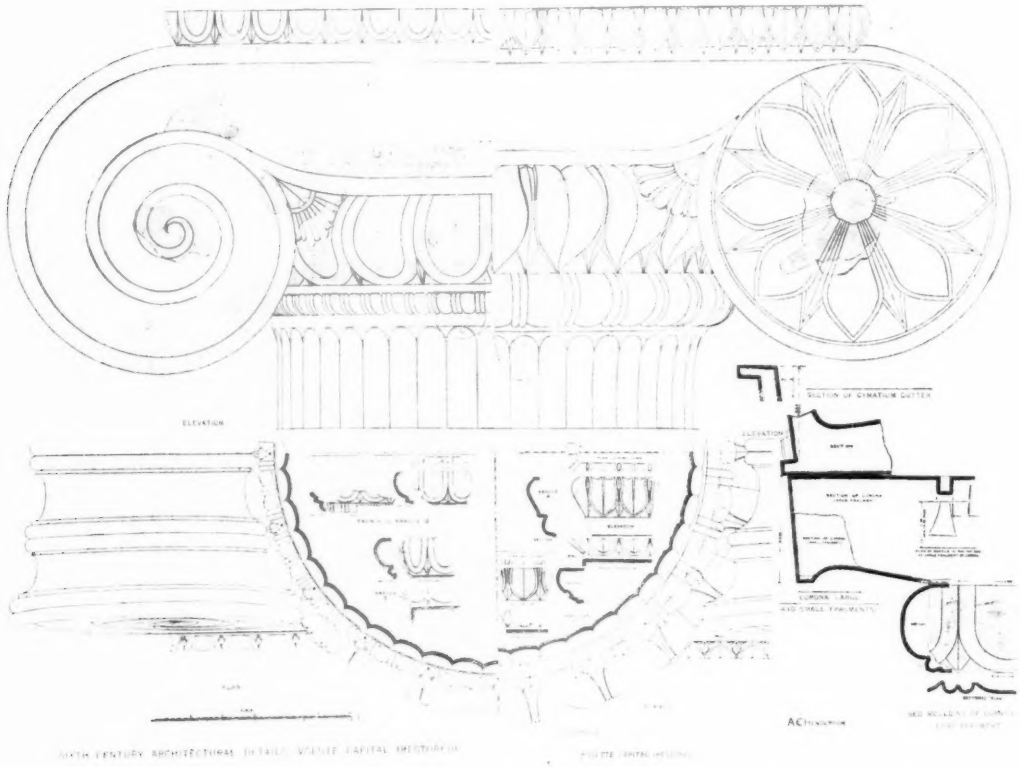
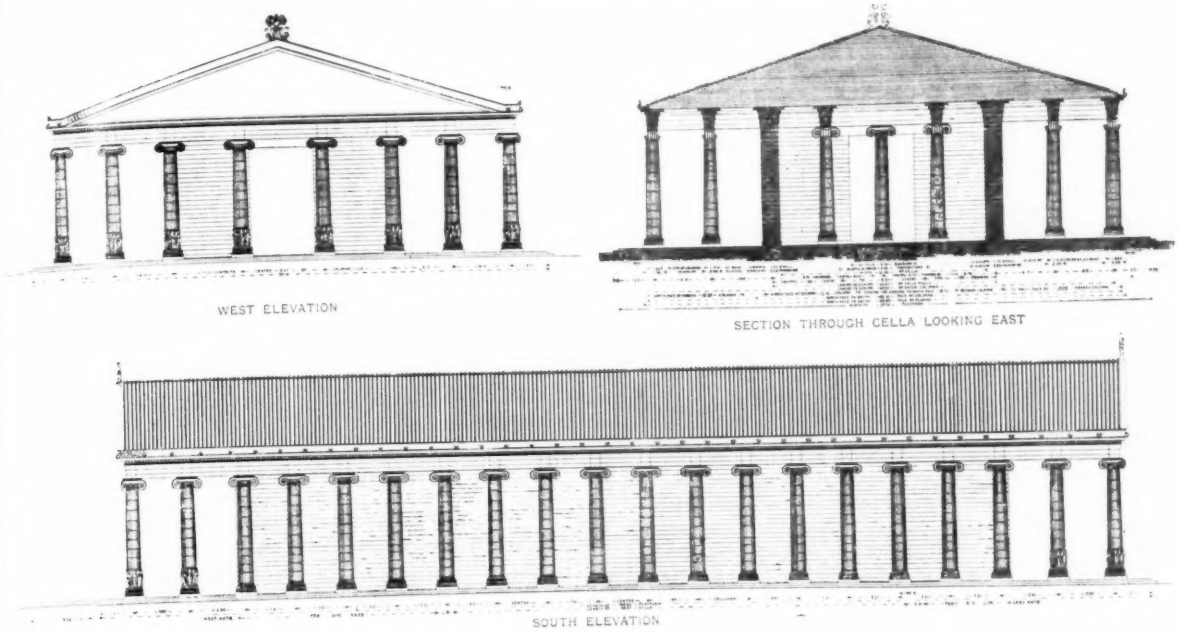


PLATE III.—DETAILS OF CAPITALS, BED-MOULD, CORONA, AND CYMATIUM GUTTER
Reduced from *British Museum Excavations at Ephesus.*

sculpture is shown as carved on the lowest drum and forming a portion (about two-elevenths) of the shaft. Since the column in front of each anta and the angle columns in the inner row of the peristyle are of minor importance, I have not shown them as sculptured.

The diameter of the columns has been shown as of varying dimensions. Those with narrow intercolumniations are of least diameter, and the diameter increases with the greater span. I have given the lateral columns an inclusive height of about 8 diameters with a shaft of about $6\frac{3}{4}$ diameters. The central columns of the eastern and western façades have approximately an inclusive height of $6\frac{1}{2}$ diameters with a shaft of 6 diameters. The plinths to the outer row of columns of the peristyle are generally 2 metres 36 centimetres (7 feet



SIXTH CENTURY TEMPLE PLAN.

PLATE IV.—RESTORED PLAN, ELEVATIONS, AND SECTION

Reduced from *British Museum Excavations at Ephesus*.

9 inches) square. The plinths to the inner row of the peristyle and all others are 2 metres 5 centimetres (6 feet 8¾ inches). Wide spreading plinths, such as those to the external columns, would impede the use of the peristyle. For the lower base to all columns I have assigned the double astragal in three belts of varying heights, separated by two filleted scotias.

Leaf torus bases are placed under the four central columns of the eastern and western façades and the pronaos and posticum columns. The remainder are variously moulded. An entasis has been assumed in the shafts, as all fragments of drums of any length showed an appreciable curve.

Drums of forty-four flutings have been given to the outer row of columns in the peristyle except at the angles. Forty flutings have been given to the drums of the inner row in the peristyle and to all other columns except at the external angles.

Rosette capitals have been placed upon the leaf bases of the eastern and western façades, and volute capitals upon all others. (I have pointed the leaves to be in character with those of the echinus and the torus base.)

The suggested angle column is shown with alternate large and small flutings, forty-eight in all, and has a torus base of similar character. The capital is of the volute type. It will be seen by the plan that there are the usual twenty eggs to the echinus. The scotias to the pulvinars unwind from these eggs, as does also the scotia of the pulvinar of the angle volute. Thus five eggs are left free between the volutes instead of the usual six. At the inner angle one egg is free and partly covered by the palmettes.

The angle of the architrave stands directly above the face of the pearl and double reel enriched astragal of the top drum. The angle abacus sweeps outwards from the centre lines directly above the horn of the volute, where it attains an angle of about 40 degrees.

The abacus of the capitals is less in width than the diameter of the shafts, even at their narrowest, but there is considerable compensation for this in the fact that its length is about twice as great as its width, and it is supported by the pulvinars of the volutes.

The central portion of the abacus supports the transverse architrave, and the bracket portions support the longitudinal beams.

It is suggested that the architrave had three facias, capped by a pearl and reel, enriched, astragal moulding, of a similar pattern to that used as capping to the shafts. The smaller continuous egg-and-dart moulding found is suggested for the external bed-mould, and the larger for the bed-mould round the cella walls.

The corona is from the length found in the north-east column base. No dentils were found. Its soffit has a finished face the whole length, 92 centimetres (3 feet ¼ inch), and a projection of 42 centimetres (1 foot 4½ inches). The bed [see Plate III.] had unfortunately been reworked by the Hellenistic builders, so no clue as to what it rested upon was found; if dentils did occur they would have been set back the distance of the projection of the corona.

The cymatium gutter has already been mentioned. This sculptured parapet is the feature of the entablature—it protected the roof from storms, and gave protection to those who of necessity had to repair the tiling. The lion-headed gargoyles have been so distributed as to throw the rain-water just clear of the columns, and allow sufficient distance between their outflows for access to the peristyle. If this parapet were continued raking up the pediment it would have been extremely unsightly from the rear and, moreover, would have no reason for its existence. I have therefore made it return at the angles for a short distance until the roof behind rises to its level; thereafter it rises as the cymatium to the tympanum cornice. I have inferred the angle of the pediment from a small fragment of marble which might be tympanum facing.

The roof of the temple is shown with tiling, inferred from the portions found, and I

suggest that timber was used for all construction above the corona member. The cella walls may have continued upwards to support the roof timbers.

It may be only a coincidence, but it is noteworthy that the plan of the eastern and western façades can be divided into four equal parts, namely, two parts measured from the longitudinal axis of the temple to the farthest removed face of the columns in front of the antæ on either hand, and two parts from these faces to the outer faces of the outermost columns. The dimension of each of these parts is roughly 12 metres 28 centimetres (40 feet 3½ inches).

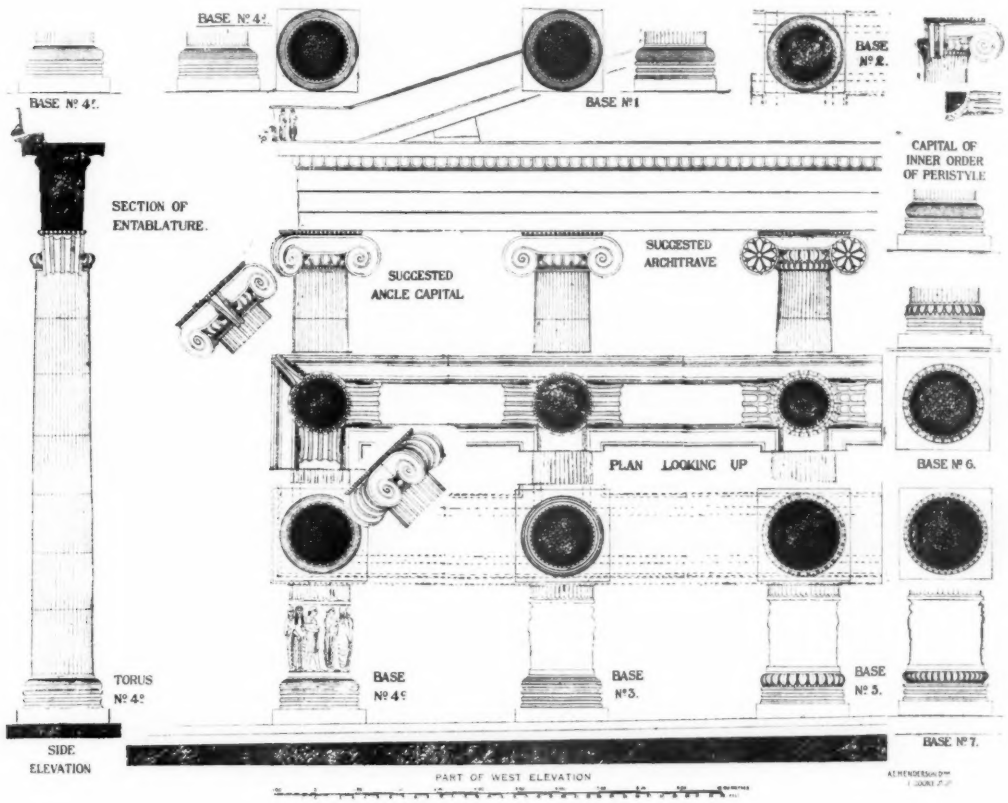


PLATE V.—RESTORED PLAN, ELEVATION, AND SECTION OF PART OF WEST END.
Reduced from *British Museum Excavations at Ephesus.*

Not having any actual evidence for the height of the architrave from the pavement, I have drawn an inference from this dimension and made the height of the colonnades in proportion to their length as one to four.

In support of this somewhat low colonnade I may remark that if greater height were given, the sculptures on the cymatium gutter would not have been clearly seen. The height of the entablature is shown as one-fourth of the height of the colonnade, namely, 3 metres ·07 centimetre (10 feet 1 inch). This dimension is divided equally between the architrave

and the superior members. The whole height of the temple, from the pavement to the summit of the sculpture crowning the pediment, I show as 24 metres 56 centimetres (80 feet 7 inches), namely, half as much as the total width of the peristyle at the base of the shafts.

TABLE SHOWING SOME OF THE PRINCIPAL DIMENSIONS.

Area.

	sq. cm.	sq. ft.	sq. in.
At plinth of columns	5,249·64	56,090	8
Of perron, including step	214·43	2,313	5
Of platform, including step	6,136·83	66,062	1
Total covered	6,351·26	68,375	6

Number of Columns.

Double rank around peristyle, including 4 "in antis"	100
In pronaos	6
In cella. The central column divides the cella into two parts, and forms a background for the cult statue standing upon the central "basis"	19
In posticum	2
Sculptured	36
Total	127

Diameters of Columns above Lower Apophyge.

These vary from 1·49 cm. (1 ft. 10⅞ in.) to 1·88 cm. (6 ft. 2 in.)

Lengths.

Centre to centre of columns in flanks.

End 5·90 cm. (19 ft. 4½ in.) × 5·90 cm. (19 ft. 4½ in.) × 5·21 cm. (17 ft. 1½ in.) × &c.

	cm.	ft.	in.
At base of shafts	103·36	339	2
At plinth of columns	105·14	341	9
Tread of step	0·36	1	2
Projection of perron at west end (with step)	8·20	26	11
Edge of platform to plinth of columns	2·53	8	3½
Platform (with step)	109·92	360	8
Total of perron and platform (with step)	117·40	387	7
North and south walls	71·34	234	1
Cella	46·67	153	1½
Pronaos	20·65	67	9
Posticum	8·75	28	8½
Thickness of east and west walls	2·01	6	7½

Widths.

Centre to centre of columns in fronts.

End 6·12 cm. (20 ft. 1 in.) × 6·13 cm. (20 ft. 1½ in.) × 7·25 cm. (23 ft. 9½ in.) × 8·57 cm. (28 ft. 1½ in.)

	cm.	ft.	in.
At base of shafts	49·12	161	2
At plinth of columns	49·93	163	10
Perron at west end (with step)	26·15	85	11
Platform (with step)	55·83	183	2
Cella	21·14	69	4½
Thickness of north and south walls	1·93	6	4
Of portal	6·70	22	0
Length of architrave, without support, over intercolumniation	6·30	20	8

Heights.

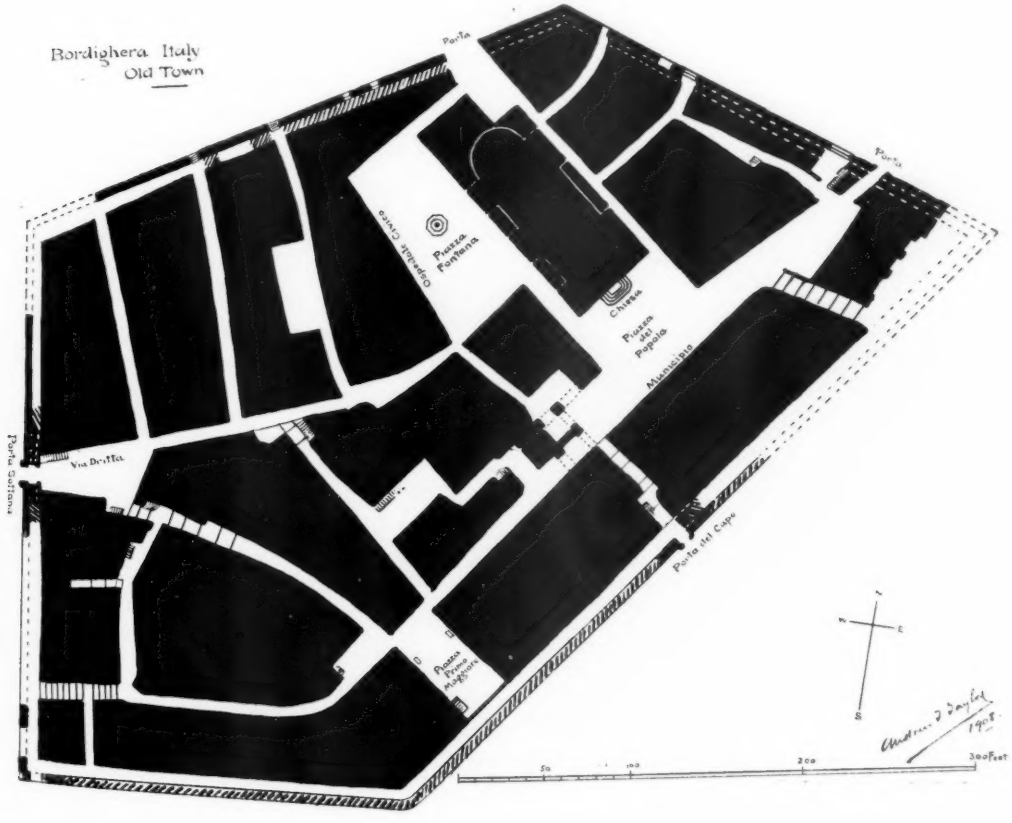
Two steps of platform	0·46	1	6
Base, shaft, and capital combined (together one-fourth length of façade)	12·28	40	4
Sculpture (only) round shafts	1·98	6	6
	mm.		
Architrave (three facias)	1·535	5	0½
Bedmould, corona, and cymatium gutter	1·535	5	0½
	cm.		
Entablature (one-fourth of the height from pavement to underface of architrave)	3·07	10	1
Complete order	15·35	50	4
Pavement to apex of pediment	22·80	74	10
Pavement to summit of sculpture above pediment (half length of façade)	24·56	8	8
Portal	11·30	37	1

OLD BORDIGHERA—ITALIAN RIVIERA.

By Andrew T. Taylor, R.C.A. [*F.*].

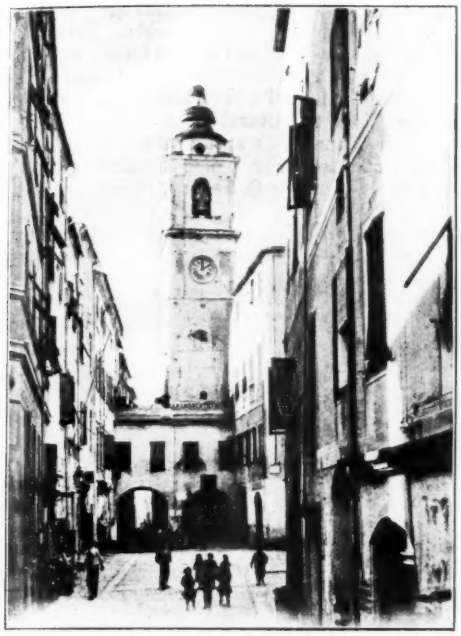
THE old towns of the French and Italian Riviera are of great interest, and full of material for the architectural draughtsman and the artist. Side by side with the modern fashionable winter resorts, they still remain with their narrow, sunless, steep streets and quaint houses and churches, so that with the pursuit of health and sunshine can be combined sketching and study of the most interesting kind. Eze, Roquebrune, Mentone, Ventimiglia, San Remo, Bordighera, all have their old towns very little altered. Even more interesting are the Saracen "Rock" towns or villages that lie up the valleys and on the hill-tops a little way back from the sea, such as St. Agnese, Castillon, Dolce Aqua, Apricale, &c. (*see illustration*), with narrow streets, often built over for considerable lengths, forming sombre tunnels. It must be confessed they are often dirty and malodorous, but abundantly picturesque, and with glorious views at most unexpected points.

Perhaps the most interesting of them all, because the most self-contained and least altered, is Old Bordighera, possessing as it does nearly all its old walls still standing, with three of its old gates. On a first visit I was struck with its citadel-like plan, and the free passage or street behind the town walls, originally going all round, so that the defenders could march round inside and quickly concentrate at any threatened point. On a second recent visit my interest was increased.



APRICALE, NEAR BORDIGHERA.

OLD BORDIGHERA, FROM THE STRADA ROMANO.



PIAZZA DEL POPOLO.

PORTA SOTTANA E VIA DRITTA.

PORTA DEL CAPA.

SALUTO DI BORDIGHERA.

On investigation I found little or no information available, and no plan of the town procurable, nor could I hear of any plan being extant. I therefore, with a certain amount of audacity, decided to take measurements and make a plan for myself. What seemed to be nearly four-square turned out to be a most irregular shape. A reference to the plan will show that it is quite unsymmetrical, and apparently rather haphazard in its arrangement. The ground falls considerably—the north corner being the highest and the south-west corner the lowest, the fall of the ground being from north to south-west. Inside, the ground has been terraced up in places, so that the three main piazzas approach a level, although all have a slight fall to the south. The streets slope considerably, many of them having steps. The church, as will be seen, is on the higher part of the town, having piazzas at the front and one side; it is very simple, and with little architectural features on the exterior, but the interior is of good proportions, with pilasters and entablature and curved ceiling, all profusely decorated.

The outstanding feature of the town from a distance is the Campanile, which is quite detached and at a short distance from the church: it is the only tower in the town, and the design, with its somewhat bulbous top, is characteristic of that part of the country. There were evidently four gates in the walls, but only two of these have any architectural features remaining; the north gate has been entirely removed, leaving now only a wide space. In the Piazza Fontana there stands the only fountain, but it is of very pleasing lines, with a figure in the centre of white marble. The streets are rarely more than seven feet six inches wide, and paved with rough cobble-stones; the houses are as a rule plain—plastered and variously tinted, and devoid of special architectural features; but one house close to the church has still retained a small but beautiful staircase with polished marble columns and exquisitely carved Corinthian capitals, groined ceilings, and stone balustrades.

The special and unique features are the town walls; at the north-east corner and at the north-west they have been removed to widen the roadways, and the northern portion has been incorporated with the houses; but the remainder is fairly intact, with the streets behind the walls. Originally the houses were all kept within the walls, but in course of time here and there, and chiefly on the north side, they have been projected on to the top of the walls, leaving a covered street under, as shown on plan by the hatched lines. As all this region is subject to earthquakes, strengthening arches are quite a feature of the towns, and are thrown across the streets at frequent intervals. In one of the illustrations the arches are also shown from the houses to the outer town walls. The charm of Old Bordighera I can give but little idea of: under a generous southern sky, with brilliant lights and deep luminous shadows, and glimpses of the blue Mediterranean here and there, it dwells in the memory as a joy, and grips the heart-strings with its impelling call of the South.

THE PIAZZA FONTANA, BORDIGHERA.

9 Conduit Street, London, W., *5th December* 1908.

CHRONICLE.

Architecture and the London County Council.

In the Journal for 4th April last [p. 359] was published a letter addressed from the Institute to the Chairman of the London County Council, in which, while acknowledgment was made of the courteous consideration given by the London County Council and its officials to suggestions made by the Institute from time to time upon architectural matters of public importance, it was pointed out how much more usefully suggestions of this kind could be made in the initial stages of a scheme than after it had been developed. The letter went on to suggest that when such matters as street planning, the design of buildings on land leased by the Council, bridges, or monumental works under the control of the Council are under consideration, the Institute might be invited to depute one or two of its members specially competent to deal with the particular subject involved, to confer with the Council or its officers charged with the matter, and give their views on its architectural aspect. Should this procedure be found satisfactory, it might be thought desirable at a later period to constitute an Advisory Committee of a few architects, with perhaps a painter and sculptor, whose experience and advice could be placed gratuitously at the disposal of the Council. This in its turn, the signatories hoped, would develop into a body corresponding with the *Conseil des Bâtiments Civils* of Paris, to which the architectural development of France owes so much. The letter was signed by Mr. Thos. E. Collcutt [*President*], Sir Aston Webb, R.A. [*Chairman Town Planning Committee*], John W. Simpson [*Chairman Art Committee*], Alexander Graham [*Hon. Secretary*].

The London County Council referred this letter to their Improvements Committee, and the following reply, dated 16th November, has been addressed to the President :—

Spring Gardens, S.W. : 16 *Nov.* 1908.

The President R.I.B.A.

Sir,—The Chairman of the Council has laid before the Improvements Committee your letter of 21st February with regard to the architectural features of improvements. The Committee are of opinion that the suggestions which the Royal Institute of British Architects have been good enough to make are of great interest and importance, and they desire me to express their thanks for the action taken by the Royal Institute. The matters mentioned in your letter have engaged the careful attention of the Committee, but, as Parliament is now discussing proposals for new legislation which, if agreed to, may have great effect on the whole question of improvements, they have come to the conclusion that it would be undesirable to advise the Council at present to come to any definite decision thereon. The Committee thought that the Royal Institute would wish to have this intimation of their views, with an assurance that, as soon as a decision shall have been come to by Parliament on the proposals in question, the Committee will again consider your letter.—I am, Sir, your obedient servant,

G. L. Gomme,
Clerk of the Council.

Local Government Board Inquiry : The Architect's Control of Work on his Building.

Mr. Edwin T. Hall, *Vice-President*, at the invitation of the Local Government Board, recently gave evidence before a Committee appointed by the Board to inquire into the relationship between architects of public buildings erected from loans sanctioned by the Board, and engineers who advise in respect of engineering work required for such buildings, the point being considered whether the latter work should be withdrawn from the control of the architect A printed copy of Mr. Hall's evidence was subsequently sent by the Committee to the Institute Council, with the intimation that the Committee would be glad to receive any representations the Institute desired to make on matters coming within the scope of their inquiry. Among these was the question how it should be determined what plant to instal at Poor-law institutions—to what extent, for instance, it was desirable that the installation of plant at such institutions should be under the direction of the architect. The matter was considered by the Council at a meeting in October last, when the following resolution was passed :—

"That the Council of the Royal Institute consider it imperative in the interest of the employers that the architect of such public buildings should have the control, direction, and supervision of everything necessary to bring to completion the building which he has designed, and that they endorse the evidence given on this point by Mr. Hall ; and further that in each separate case the plant to be installed should be determined by the employers in consultation with the architect."

A copy of this resolution was forwarded to the Local Government Board, with an expression of

the Council's appreciation of the courtesy shown by the Board in affording them an opportunity of expressing their views upon the point.

Proposed British Architectural School in Italy.

The suggestion in the President's Address [pp. 8, 9] that a School should be established at Rome or elsewhere in Italy for the benefit of British architectural students was on the agenda at the Council meeting last Monday, and a small Committee has been appointed to consider the question and report to the Council.

Fellowship Nominations withdrawn.

With reference to the announcement entered on the Minutes of the Meeting of the 16th November that the Council proposed to summon a Special General Meeting for the 30th November to consider a Resolution that By-law 9, saving the first sentence, be suspended, a notice was issued with the last number of the JOURNAL stating that the Resolution had been rescinded and the Meeting would not take place. It was further announced that the elections to the Fellowship would not be proceeded with on the 30th November, owing to the withdrawal of the nominations.

The proceedings at the Business Meeting held last Monday are sufficiently indicated in the Minutes of that Meeting, and do not call for further report.

Rearrangement of the Victoria and Albert Museum (Art Division).

The Report of the Committee appointed by the Board of Education last February to prepare a scheme of rearrangement of the Art Collections of the Victoria and Albert Museum, and to advise as to the principles which should guide the future development of the Museum, is now published as a Parliamentary Paper. The Committee as originally constituted included Sir Charles Dilke (Chairman), Dr. Cecil Smith, Messrs. W. A. S. Benson, Lewis Day, H. Powell, and J. C. Wedgwood, M.P. Sir Charles Dilke having resigned, his place as Chairman was taken by Dr. Cecil Smith.

The Committee's procedure in planning their work was largely influenced by the fact that, owing to the approaching completion of the new buildings and the necessity for deciding structural questions, the Board of Education desired to have their recommendations by the end of July. They therefore confined themselves to classification of the collections, the disposition throughout the building of the main divisions of the collection in due relation to one another, and the main lines upon which the subsections of those divisions and the objects comprised in them should be disposed. They have also indicated the lines on which they consider the work of the Museum should be developed so as to observe a clear differentiation of function from that of the other National museums in London, and to establish for the Victoria and Albert Museum a recognised area of activity in the future.

As regards internal administration, it became early evident to the Committee that provision should be made for Keepers' offices in the new building, and having indicated the amount and nature of the accommodation considered requisite for each department, their proposals were accepted by the Board, and the Office of Works has since been able to provide the accommodation required. The Committee strongly advocate advantage being taken of the rearrangement of the Museum to form as rich a collection as possible for the use of the Circulation Department, so as to render that department independent of the collections on permanent exhibition, and to avoid the necessity for taking objects from the cases in the Museum to lend for exhibition in the provinces. They recommend that the Circulation Department should be so developed as to render as rare as possible the temporary removal of objects on permanent exhibition. The Circulation Department, they consider, should have an administration separate from, but in touch with, the Museum. The scheme of rearrangement proposed is based on the understanding that the bulk of the Oriental collections in the galleries in the Imperial Institute Road would be distributed, as recommended by the Departmental Committee in 1902, among their respective sections in the main building. The galleries thus set free could be utilised for the future expansion of the Museum.

In view of the intention of the Board of Education that the Museum should be definitely developed as a Museum of Applied Arts, special consideration has been given to the collection of Oil and Water Colour Paintings, Miniatures, Sculpture, and Prints and Drawings, some portions of which do not admit of the application of principles of arrangement that may be applied to the collections of Metalwork, Woodwork, Textiles, &c. The inclusion in the Museum of paintings which have no direct bearing on any of the applied arts is considered anomalous, and their transference is recommended either to the National or the Tate Gallery. The natural scope of the Museum should be the collection for exhibition of finished paintings from the artistic point of view. In the event of its being found impossible, owing to conditions of bequest, to transfer certain of the picture collections, the Committee suggest the utilisation for them of the galleries to be vacated by some of the Oriental collections in the Imperial Institute Road. The primary interest of fresco and mural painting being decorative, these works should properly be assigned to the Victoria and Albert Museum, the National Gallery taking only such exceptional examples as are required of a particular master's work or for the illustration of the historical development of painting. As regards sculpture, the Committee consider that an ideal arrangement might be

to co-ordinate all the National collections in one building or in adjacent buildings. As this is for the present impossible, they suggest that the Museum be meanwhile regarded as the home of all classes of sculpture which are not included in the British Museum collections, with the further provision that of post-Renaissance sculpture only specimens should be included which may be selected as the most artistic examples of applied design. Purchase of sculpture should be confined for the future to such objects only as have an important bearing on applied design. The opinion is expressed that the scope of the section of Prints and Drawings should be as far as possible confined to such examples as illustrate the history and development of decoration and of the applied arts.

The Committee propose that the objects comprised in the Museum collections shall be arranged in eight departments—viz.: (1) Architecture and Sculpture; (2) Metalwork; (3) Woodwork, Furniture, and Leather; (4) Textiles; (5) Ceramics, Enamels, and Glass; (6) Paintings; (7) The Library; (8) Engraving, Illustration, and Design. In the arrangement of the various sections the following principles should be kept in view: (1) There should be formulated for each section a reasonably logical scheme, illustrating the technical and artistic development of the particular industry represented, and that scheme should be adhered to in the arrangement of the specimens; (2) Where specimens are not available for the complete illustration of the sequence of development, attention should be drawn to the deficiencies by means of drawings and photographs, with the view of substituting for these, as time goes on, actual specimens acquired by gift or purchase. As regards the collection of casts, which are mainly from architectural originals, the Committee, while recognising their value and allotting additional space for their arrangement on a more intelligible and useful principle, deprecate very strongly further additions to the collection, except where needed to illustrate or supplement originals.

Dealing with the collections of Architecture and Sculpture, which for the most part are arranged in the East and West Halls, the Report states that endeavour has been made to secure as far as possible strictly chronological arrangement. The plan of building specimens into the Museum structure is not commended. Such objects should be placed where they are easily available for consultation, and no attempt should be made to suggest the position or surroundings (which must be inadequate and misleading) for which they were originally designed. Provision, however, should be afforded as near the object as possible of a model, photograph, or drawing of the building or part of the building from which the detail in question has been removed.

The Committee's proposals for an Architectural Index, a matter in which they acknowledge the assistance derived from Professor Reginald Blomfield's suggestions, are best given in the words of the Report:—

> The object of this Index should be the illustration by means of models, photographs, and drawings of the development of architecture. A number of models already exist in the Museum which would enable a beginning to be made with the formation of the Index.
>
> In the process of arranging such a series the directions in which the main collections, both of originals and reproductions, need extension, would become apparent in a way that should be of great service in determining future purchases for the department of architecture.
>
> Illustrations of the early and archaic forms of architecture might be grouped immediately to the west of the main entrance, and along the passage would be shown the development of Oriental architecture in proximity to the large specimens in the West Hall. In the wide lobby, at the point where the passage opens to the West Court (old Science Library), now allocated to Oriental wood-work, the larger Oriental models of buildings would be placed; similarly the models of Italian buildings might be placed in the corresponding lobby which leads into the East Court (present Tapestry Court, but hereafter to contain casts of European stone carving and applied sculpture). The whole of the passage to the right of the entrance would be devoted to European architecture.
>
> At every point the labels should indicate where to look in the Museum for more ample illustration of the subject, and should if necessary refer the inquirer to other London Museums, or to buildings easily accessible.
>
> To perfect such an Index, to work out its arrangement in the most conveniently logical order, to make it complete, and yet not redundant, attractive in appearance without descending to mere prettiness, would no doubt be a work of time and much thought and experiment. But since all the objects would be small, subsequent rearrangement would not be costly, and could be carried out piecemeal, section by section, as material accumulated. For instance, photographs would at the start probably predominate—and photographs would always be invaluable—but in the mass their monotony is unattractive. Scale drawings are necessary for the student, but again, are not attractive in the mass. The perfect Architectural Index should, if possible, include a large number of old engravings and good coloured drawings.
>
> The Museum staff are already alive to the principle involved (as witness the drawings appended to the Montal window and to Sir P. Pindar's house). It should be followed throughout the department; for instance, the openings of the carved Italian doorways should be fitted in with good illustrations of their position in the complete building and of other similar doorways.
>
> Side by side with scale drawings of the Museum specimens, should be placed outline drawings to the same scale of well-known and accessible buildings for the purpose of impressing upon the student the value of scale.

It is proposed that some of the larger specimens of woodwork, being considerable portions of buildings, shall be placed in the Architectural Court on the north wall, so that they will lead up to the woodwork on the floors of the several courts, and so to the old part of the South Corridor, which is to be exclusively woodwork.

The Ceramic collection to be housed in the new galleries is so large, and in the main so excellent, that it is hoped to arrange it in a fashion that will show the historical development of the craft both on its technical and artistic sides, in a way that no other collection would admit.

Complete plans of the various floors showing

the disposition of the Collections are given as an Appendix to the Report.

Higher Education for Architects.

A claim for the provision of higher education for architects in the new University of Dublin is being actively put forward by the Royal Institute of the Architects of Ireland. A letter recently addressed by the Council of that body to the Dublin New University Commission says:—

"The Council of the Royal Institute of Architects of Ireland, desirous of promoting higher architectural education, and of affording students increased facilities for acquiring, conjointly with, or as a preliminary to, artistic and exact technical attainments, a liberal general education, with opportunity of proceeding to a University degree, deems the time opportune for bringing before the Commission the matter of architectural education in Ireland, with a view to the possible establishment of a Chair of Architecture in the new University.

"In the University of Liverpool there has been established for some few years past a Chair and a School of Architecture, with the stated object of providing for architects professional education of a University standard side by side with the students of other professions, and the University now grants the degree of Bachelor of Architecture (B.Arch.). The School is recognised by the Board of Architectural Education, and is terminally inspected by visitors representing the Board."

The Council conclude by an expression of their willingness to co-operate and assist with advice in the formation of a scheme of architectural education under adequate professional control in connexion with the new University.

Mr. Henderson's Restoration of the Sixth Century B.C. Temple at Ephesus.

Mr. A. E. Henderson, who describes in the present number the remains of the Crœsus (sixth century B.C.) Temple of Artemis at Ephesus, has a notable drawing in the autumn exhibition of the Royal Society of British Artists depicting his suggested restoration of the fabric. The restoration is based upon the suggestions given by Mr. Henderson on pp. 89 *sqq*. The central statue is an adaptation of two small ivory statuettes brought to light during the excavations. A grille is suggested at the entrance to the pronaos, where the T-shaped mortices were found. The design is based on "The Weepers" sarcophagus found at Zedon, but with capitals after the model of that found at Lampsacus on the Hellespont. On page 94 Mr. Henderson gives his reasons for the return of the cymatium. Koldewey and Puchstein, in their restoration of Temple C at Selinus, indicate the return somewhat on the same lines. Mr. Henderson states that there is nothing to prevent the usual acroteria being placed at the angles. The crowning acroterium is a rather common form of the goddess as mistress of the animal world. A small ivory plaque of this type was unearthed near the central basis. The *Builder* of the 21st November has a four-page plate showing an admirable photographic reproduction of Mr. Henderson's drawing.

The L.C.C. Works Department.

The following recommendations of the General Purposes Committee, arising out of the decision of the London County Council to discontinue their Works Department, were moved for adoption at the County Council meeting last Tuesday—viz.: "(*a*) That the premises occupied by the Works Department be transferred, as surplus property, to the Improvements Committee from 1st January 1909, with the proviso that the Works Department may occupy the premises, subject to one month's notice, until such later date as the committee controlling that department may require, or as the premises may be sold or let. (*b*) That the Works Committee be authorised to arrange for the disposal of the plant and stock of the Works Department. (*c*) That it be referred to the General Purposes Committee to submit amendments . . . to provide for the execution by direct employment of labour, under the direct supervision of the executive officer concerned, of works which it may be desirable to carry out by this method." The recommendations were adopted, with the omission in (*a*) of the words "or as the premises may be let or sold."

The Advancement of Craftsmanship.

The Carpenters' Company, having in view the decadence of apprenticeship, has decided to give, in its Hall, a series of lectures on "Preliminary Design in the Constructive Arts," in accordance with its ancient traditions, for the advancement of the best work in the arts connected with building. The lectures will, in the first place, be for all craftsmen and those engaged in actual trades in connexion with the constructive arts, but all of either sex and of any trade or profession are invited to attend. Admission will be free by ticket. The lectures will last about three-quarters of an hour, and at the close questions on them may be asked. At the end of the course prizes will be offered to those who have attended not less than eight lectures. Though it is hoped the lectures will be more or less exhaustive, the idea is to encourage those who attend to study the subjects for themselves. Between January and April next the following gentlemen will give lectures on various arts connected with building:—Messrs. Weir Schultz, Guy Dawber, Romney Green, Troup, Voysey, Baillie Scott, Spooner, Laurence Turner, and Starkie Gardner. Tickets of admission to the lectures, and any further information, can be obtained from Mr. J. H. Freeman, Clerk, Carpenters' Hall, London Wall, E.C.

The Decline of Apprenticeship.

One of the questions which received special attention at the International Congress of Contractors for Building and Public Works held in Paris from 15th to 19th November, was that of apprenticeship, and the serious need there is for training up proper workmen for the various industries related to construction. The following resolutions dealing with this subject were passed :—"That in the case of commerce and industry apprenticeship is to be deemed obligatory on the different professions, which are bound to provide means of support for it, as also to take measures to organise it thoroughly ; further, that the requisite legislative enactments should be passed to ensure the provision of funds for this purpose."

The chief speaker on the subject was M. Villemin, who deprecated too much State interference in this matter. Employers in industries should rely upon their own initiative in the matter of training apprentices, and every employer should be compelled to do his share in the work. The mission of providing such training should be given by law to chambers of commerce, or other similar bodies representative of every industry. The instructors should be drawn from the ranks of those employers and workmen practically engaged in the respective industries, and their remuneration and the other expenses should be provided for by a fund to which every employer should be bound to contribute. In some centres, manual training schools might be necessary, but the system advocated was designed to be so elastic, and to leave in the hands of those responsible such latitude as would enable manual training to be given in every village throughout the country, such manual training to follow on as soon as the child leaves school, and be continued until he is sixteen years of age. This system should be accompanied by an amendment of the existing law, so that apprentices may work in the same shops and on the same works as workmen, even though the latter work longer hours than are permitted to apprentices. Apprenticeship should be obligatory on those who desire to enter an industry, and every apprentice should be obliged to produce a certificate of training and apprenticeship before being admitted a journeyman. M. Villemin praised the Danish system, which required every apprentice at the end of his term to prove, by practical test before a competent jury, his title to be admitted a journeyman. The Danish system has proved so successful that the general practice in Denmark is for the workman to prefer to work by the piece rather than by the hour, and the supply of labour is ample and of excellent quality.

Historical Monuments Commission.

In the House of Commons on Tuesday, 24th November, Major Anstruther-Gray asked the Prime Minister whether he was aware that while other societies, such as the Royal Archæological Institute, the Royal Institute of British Architects, and the British Archæological Associations, were each formally invited to submit names to serve on the English Historical Monuments Commission, no such invitation had been sent to the Society of Antiquaries of London, which had thus no official representation on the Commission ; and whether he could state the reason why the Society of Antiquaries had been ignored.

Mr. Asquith replied that as he was unaware who among the members of the societies referred to was best suited to assist on the Royal Commission on Ancient Monuments, he had invited those societies to submit names. The prominent position of the Society of Antiquaries made it unnecessary to follow the same course in their case, and, in accordance with the usual practice, he had used his own discretion in the selection of members from that body to serve on the Commission. The fact that out of the eleven members of the Commission five were Fellows of the Society of Antiquaries —one of them having been President of the Society for many years—should, he thought, be sufficient proof that neither in intention nor in practice had the Society of Antiquaries been ignored.

The Smithfield Gateway.

An effort is being made to preserve the ancient gateway to St. Bartholomew the Great, West Smithfield, which dates from the early part of the thirteenth century. Sir Aston Webb, R.A., who has had charge of the restoration of the Priory Church during the last twenty-four years, in a letter to the Rev. W. F. G. Sandwith, the rector, says :—"I have now received a definite offer from the trustees for the purchase of the property over the gateway and 6 feet to the south thereof (if the trustees can have a satisfactory offer for rebuilding the remaining portion of the property) on the terms as valued by their surveyor, namely, £75 per annum on lease, or for the freehold £1,875, the offer to be open till 1st January 1909. Should this offer not be accepted I understand it is the intention of the trustees to let the whole on a long building lease, when these picturesque old buildings would be pulled down, and great buildings, something like those lately erected on the north side, would take their place. This would entirely destroy the appearance of the gateway and make it little better than a dilapidated and neglected ruin. As the architect who for many years has had charge of your church I venture to urge the great importance of the preservation of this property, not only to your parish of St. Bartholomew the Great, but also to the City of London. It is one of the most interesting relics of the few mediæval fragments which the City retains, and it would be lamentable indeed if in the course of one year the City should lose Crosby

Hall and the picturesque entrance to the most ancient church in the City. Should the property be acquired, it would be for preservation, not restoration, which in this case is not required. It is thought that some £200 would put the premises into habitable condition." At an influentially attended meeting held last week in the Great Hall of St. Bartholomew's Hospital, the following resolution was unanimously adopted:—"That, in the opinion of this meeting, it is desirable for the preservation of Smithfield Arch that the property over it and 6 feet to the side of it be secured, and that this meeting pledges itself to use its best endeavours to raise the sum of £1,875 and a further £200 to put the house in a habitable state of repair."

Mr. Banister F. Fletcher [*F.*] was called to the Bar at the Inner Temple on the 17th ult. Mr. Fletcher is not retiring from the architectural profession, but will continue as hitherto the practice he shares with his brother, Mr. H. Phillips Fletcher [*F.*], who is also a member of the Bar.

The Competition organised by the Proprietors of *The Builder*, in which a First Prize of Twenty Guineas and a Second of Ten Guineas will be awarded for the two best Designs for the Architectural Treatment of a Building constructed in Reinforced Concrete, was called attention to in the JOURNAL for 17th October. The drawings sent in are to be publicly exhibited, and the Council of the Architectural Association have granted for the purpose the use of their Central Galleries at Tufton Street during the week December 14–19.

MINUTES. III.

At the Third General Meeting (Business) of the Session 1908–09, held Monday, 30th November 1908, at 8 p.m. —Present: Mr. Leonard Stokes, *Vice-President*, in the Chair; 18 Fellows (including 8 members of the Council) and 15 Associates (including 1 member of the Council) —the Minutes of the Meeting held 16th November [*ante*, p. 76] were taken as read and signed as correct.

The Hon. Secretary having formally acknowledged the receipt of books presented to the Library, a vote of thanks to the donors was passed by acclamation.

The following candidates were elected by show of hands under By-law 9:

AS ASSOCIATES (34).*

BAIRD: WILLIAM [*Probationer* 1902, *Student* 1904].
BROMHEAD: FRANK HAROLD [*Probationer* 1899, *Student* 1905] (Birmingham).
BURGOINE: STEPHEN [*Probationer* 1900, *Student* 1903].
BURLINGHAM: ALFRED CLAUDE [*Probationer* 1904, *Student* 1906].
CABLE: JAMES SYDNEY [*Probationer* 1902, *Student* 1904].
CLARK: CHARLES WALTER [*Probationer* 1903, *Student* 1905].
COLTHURST: WILLIAM BUNTER [*Probationer* 1899, *Student* 1901] (Taunton).
CRAMPTON: ALFRED [*Probationer* 1903, *Student* 1904] (Southport).
DITCHBURN: DAVID WILLIAM [*Probationer* 1901, *Student* 1904].
DIXON: REGINALD [*Probationer* 1903, *Student* 1905] (Birmingham).
DYKE: DAVID NICHOLAS [*Probationer* 1905, *Student* 1906].
EDWARDS: ARTHUR CECIL MORRIS [*Probationer* 1901, *Student* 1903].
EMERSON: HARRY VALENTINE MILNES [*Probationer* 1902, *Student* 1905].
EPPS: WALTER MANTED [*Special Examination*].
FARROW: GEORGE REGINALD [*Probationer* 1904, *Student* 1907].
FORSYTH: CHARLES [*Probationer* 1900, *Student* 1902] (Glasgow).
GRAVENOR: HAROLD JAMES [*Probationer* 1899, *Student* 1907] (Montreal, Canada).
GREEN: EDWARD RODWELL [*Probationer* 1904, *Student* 1906] (Sydney, N.S.W.).
HOLT: HAROLD GUY [*Probationer* 1901, *Student* 1904] (Nottingham).
JEFFERIES: HERBERT GEORGE [*Special Examination*].
JEFFREY: JOHN MacNEE [*Probationer* 1904, *Student* 1906] (Glasgow).
LANGMAN: FRANCIS WILLIAM [*Probationer* 1900, *Student* 1904].
LOVELUCK: EDWARD [*Probationer* 1906, *Student* 1907].
MEAKIN: FRANK [*Probationer* 1899, *Student* 1905] (Derby).
MILNE: DAVID [*Probationer* 1902, *Student* 1903].
MITCHELL: WILLIAM HENRY [*Probationer* 1901, *Student* 1906] (Sale).
OSBORNE: FRANK JOHN [*Probationer* 1902, *Student* 1905] (Birmingham).
PHIPP: REGINALD ARTHUR HYATT [*Probationer* 1901, *Student* 1905] (Manchester).
SAYNER: JOHN HAROLD [*Probationer* 1900, *Student* 1905].
SCOTT: JAMES MAXWELL [*Probationer* 1904, *Student* 1906].
SMITHERS: ALEC [*Probationer* 1899, *Special Examination*].
STELFOX: ARTHUR WILSON [*Probationer* 1904, *Student* 1907] (Belfast).
TAYLOR: SAMUEL POINTON [*Probationer* 1901, *Student* 1907].
TRUELOVE: JOHN REGINALD [*Probationer* 1901, *Student* 1905].

* All the candidates have passed the qualifying Examination.

Mr. Max. Clarke [*F.*] having asked whether under the By-laws he would be permitted to ask the ages of candidates whose nominations for the Fellowship had been withdrawn, the Chairman expressed a doubt whether the question should be answered, seeing that the gentlemen referred to were no longer candidates.

Mr. Max. Clarke gave notice of his intention at the next Meeting to ask for the information to be given.

The Chairman having announced the date and business of the next Meeting, the proceedings closed and the Meeting separated at 8.15 p.m.

Errata, Journal 21 Nov.—In some of the copies of the last issue of the JOURNAL (p. 60), Colonel Coke's residence was given in error as in Sussex, instead of *Alfreton, Derby*.

Mr. A. Randall Wells, one of the L.C.C. examiners in Building Construction, is not a member of the Institute, as inadvertently described in the JOURNAL, p. 73.

REVIEWS.

TOWN PLANNING.

Modern Civic Art, or the City made Beautiful. By Charles Mulford Robinson, Author of "The Improvement of Towns and Cities." 8o. New York and Lond. 1903. *(G. P. Putnam's Sons.)*

The great and pressing importance of the study of the general principles of Town Planning amply justifies especial note being taken of the above recent addition to the Institute Library. This work, which is on somewhat similar lines to the author's previous work, *The Improvement of Towns and Cities*, shows, however, an advance in descriptive force that must commend it to all classes of readers. Commencing with a consideration of the influence of accumulated wealth on civic evolution, the advances that have been made in practical matters, and the likelihood of rapid future developments in those artistic, this book proceeds to define civic art as one expressing the idea of community and combined effort. The author's view of civic art is that beauty is subordinate to humanity, demanding that the surroundings of men should be clean, wholesome, and uplifting, as well as pleasant to see. The necessity of a definite ideal as an inspiration to continued efforts is also emphasised. The body of the work is devoted to the discussion of principles on which such an ideal can be based, and these are handled in such an instructive and comprehensive manner that it seems most desirable to give, at any rate, a brief summary of the succeeding chapters.

The City's Focal Points.

Chap. III.—The Water Approach.

Most towns suffer from a lack of definiteness in the impression they make as one approaches them, and the first impression (the impression as a whole) counts for much. The most favourable place from which to view a city is usually the water. Most cities possess some such view-point, and the picture from river, lake, or sea demands attention. Though sea or lake may seem the more important, it must be remembered that with the river, the opposite shore and the bridges provide more numerous view points.

The rapid stream is picturesque in itself; to the navigable one the craft afloat on it adds the charm of variety and human interest. The complexity of this subject and the very varied requirements admit of the broadest rules only.

Some part should be reserved for public enjoyment, and the possibility of carrying a drive or promenade above the commercial wharfage may be considered. The problem will sometimes involve the embanking and reclamation of mud flats and their utilisation as park lands.

Every effort should be made to reduce to order the too frequently ragged and neglected state of the water front.

The interdependence of quays and bridges and the harmonising of the bridges with their surroundings both demand careful study.

Chap. IV.—The Land Approach.

In the past the walled city had to make special and formal provisions for the land entrance, but the modern city has no such bounds, and growth is incompatible with any such definite entrances. The coming of the railways once more brings the traveller into the city at a fixed point, as the flying glimpses from the train can hardly be said to count.

The significance of the station approach was for long overlooked, though the very form of the terminal station suggests a portal. In the surroundings of a railway convenience is paramount, but this need not preclude their being pleasant and attractive, though elaborate decorative effects are in most cases better reserved for less distracting locations.

In smaller cities the station square may be made a component of the park system. The high-level station gives an opportunity for fine terracing.

Referring back to the passage of the railway line through an urban area, much should be done towards ameliorating the present forlorn aspect usually presented to the traveller.

Chap. V.—The Administrative Centre.

Public buildings should be grouped around an open space as forecourt. Preferably such a group should be placed on a water front, or alternatively on an eminence.

The requirements of an educational group differ in demanding more seclusion and quiet.

The character and scale of the buildings forming such groups should harmonise, and they may be appropriately connected up by colonnades or formal planting.

Chap. VI.—The Business District.

The defects of the gridiron plan, both from the practical and artistic standpoints, have become apparent. The superior qualities of Wren's plan for London, and the existing ones of Paris, Vienna, and Washington, are obvious.

The consideration given to the alignment of new streets on the Continent is exemplified by the careful report on the æsthetic effect of a street improvement in Brussels made by "L'Œuvre National Belge."

The proportions of a street define its character far more than actual dimensions.

The width demanded by the traffic is not to be determined merely by the traffic's mass. The grade and the speed of travel must also be considered in estimating the requirements. A liberal amount of land should be taken in laying out a new street through existing property, in order to avoid sites awkward to deal with, both architecturally and economically.

The redemption of a slum is perhaps best effected by cutting a great highway through it.

CHAP. VII.—ARCHITECTURE IN THE BUSINESS DISTRICT.

A degree of harmony, if not of uniformity, is desirable. Heights should be limited for three reasons:—

(1) For the sake of good proportion for the street.
(2) For that of the buildings' own proportions.
(3) For the protection of neighbouring meritorious structures.

The adjustment of the scale of a building to the distance and position from which it may be seen must depend on the architect: no statute can provide for it.

In civic improvements the most thorough consideration must be given to the effect of buildings of historical or architectural interest under the new conditions.

Every possible restraint should be exercised on the commercial instinct to make each new building out-shout its neighbours, and effort should be made to divert this rivalry into artistic channels.

CHAP. VIII.—THE FURNISHINGS OF THE STREET.

The furnishings of the business street include the lighting apparatus, the street name signs, post-boxes, fire-alarms, orderly boxes, trolley poles, and business announcements.

The evolution of street lighting is an interesting study; in the present day it has an importance justifying the most serious efforts in the design of the lamp standards, and the variation of lighting methods in relation to special features of the surroundings.

Important buildings could have their façades strongly illuminated, and decorative strings of lights need not be limited to galas and exhibitions.

The street name signs offer scope for artistic treatment; they are better on lamps than on buildings, uniformity of height and position being desirable. Advertising should be limited to municipal columns or kiosks; even these can hardly be considered as an enhancement of the dignity of the street.

To sum up, these street furnishings should add to, not detract from, the convenience and beauty of the street.

CHAP. IX.—FOUNTAINS AND SCULPTURE.

Of first importance is the selection of suitable positions that will break the monotony of closely built-up streets; large spaces are not essential—*vide* many French and Italian examples. Such civic ornaments should be designed for a specified position, or at least the most suitable position should be sought out and adapted.

The bridge, viaduct, and open space have traditional claims, and sculpture can be here displayed without risk of future buildings destroying its proportions and harmony.

There is a general tendency to choose some site especially well adapted for sculpture, and make it the show place of the city, though this is not the highest ideal; it is, perhaps, reasonable enough if it is a place where the people will naturally congregate, and one may trust to the influence of such a place gradually extending through the rest of the city.

IN THE RESIDENTIAL SECTIONS.

CHAP. X.—STREET PLOTTING AMONG THE HOMES.

The residential area is the battlefield between the attraction of the city and the decentralising influence of the country's spacious beauty. The main routes will be radial, and will at their intersections, with a more or less rectangular system, afford open spaces and sites for public buildings.

Leaving the principal thoroughfares, the minor streets may be allowed the charm of variety; they may be broad or narrow, straight or curved, just as the local conditions suggest.

The arrangement of the parks and parkways will greatly influence the plans of suburban districts, and natural contours must be regarded if the characteristic native beauty of a tract is to be retained, even if economy of construction did not dictate such a course.

In providing for a possible increase of traffic, the relative advantages of the wide road with park-like margins, and the narrow one with the building lines set back, claim to be considered; and, further, the transition from one class of occupation to another involves numerous problems of a like character.

CHAP. XI.—ON GREAT AVENUES.

In the business district these will depend on architectural magnificence; further out, they should be characterised by sufficient breadth to provide good belts of trees, and sufficient turf, shrubs, and seats to make them pleasant public promenades.

The essentially formal character of the avenue renders it a particularly suitable location for fountains and monuments, while an arch, by its scale and majesty, forms a most appropriate terminal.

If tram lines run along the avenue, and room admits of space being reserved for them, the tracks may be thrown into a separate turf-planted strip at the road's border, as done by F. L. Olmsted in Beacon Street Avenue, Boston; this can be bordered with shrubs, and climbers may be trained up and between the posts.

CHAP. XII.—ON MINOR RESIDENTIAL STREETS.

These must largely depend on the standard of individual taste as displayed in the houses and their adjuncts; every effort should be made to encourage co-operation among the occupiers of these in the treatment of both the fronts and backs of their property.

As it is important in this section to preserve all existing trees, they can be placed in the charge of the parks committee, or in that of a special warden, preferably the latter.

Where the streets are wide enough a park-like treatment should be adopted, but any planting at street corners should be kept low to avoid the risk of collisions.

Chap. XIII.—Among the Tenements.

This problem is as much sociological as architectural: the worker must have quick and cheap access to his work, and unless the latter can be located outside the city, he will inevitably gravitate towards the inner residential districts. Between these and the business centre ample communication is needed, apart from the general lines of traffic to the outer suburbs.

Playgrounds and pleasantly designed gardens must be provided in these densely-populated areas, and in cosmopolitan cities like London, Chicago, or New York some concessions ought to be made to the tastes of the foreign "colonies," the city frankly catering to the natural instincts of these peoples, in so far as they violate no broadly conceived laws or just standards of morality.

The City at Large.

Chap. XIV.—Comprehensive Planning.

This has been achieved for centuries at the behest of individuals, but only within the last few years has it been applied to the service of civil life. The Chicago Exhibition did much to initiate the movement, and the University of California influenced its development.

The interdependence of all the arts that go to make up civic art is now realised as it has not been before, and the value of a comprehensive scheme prepared by an expert commission is recognised—such a commission as would secure the co-operation of architect, sculptor, landscapist, engineer, and one member whose general culture would enable him to balance the claims of the various arts and sciences involved.

Chap. XV.—Open Spaces.

These generally had their origin in the outdoor market, but the recognition of their charm in breaking the monotony of the streets led to their adoption in other cases, till we have innumerable examples of varied type.

They should appear to grow out of the street lines, and this is obviously practicable where street and "place" are planned at one time; but where they are the result of subsequent operations, as in the case of opening up disused graveyards, much of makeshift will probably be inevitable.

The opportunity offered by an open space consists not so much in surprising with a sudden splendour, as in casting a radiance as far as possible on adjacent streets; the requirements imposed by such vistas are, however, little more than hints, the convenience of traffic, the character of the surroundings, and the harmonious setting of the abutting architecture all exercising more important influences.

An attempt to imitate natural effects in an open space, with the firm lines of buildings surrounding it, is absurd; even if it is not dominated by any monumental works, the treatment should be formal.

Chap. XVI.—Parkways.

These are distinct in their intention from the other types of street, ranging in treatment from the formal boulevard to a mere strip of natural country, with but a footway leading through it. Their object is to extend the apparent area of the park system and to bring it in touch with the largest possible number of people, without taking up an extravagant area of the land.

The parkways are mainly of two kinds: that which unites park and city, and that which joins separated parks. The former will approximate more to the boulevard type, and will probably include rapid transit facilities; while the latter is more likely to consist of a selected strip of country, possibly a small river valley or a sharp escarpment very little modified from its original state.

Occasionally the parkway falls under neither of these two heads, arising from the development of a route for its own sake, as in the case of the Riverside Drive, New York, or the Ocean Boulevard, San Francisco; this type will depend for its adoption on the existence of some markedly characteristic local feature. In the U.S.A. such a parkway would include a speedway primarily for fast driving.

Chap. XVII.—Distribution and Location of Parks.

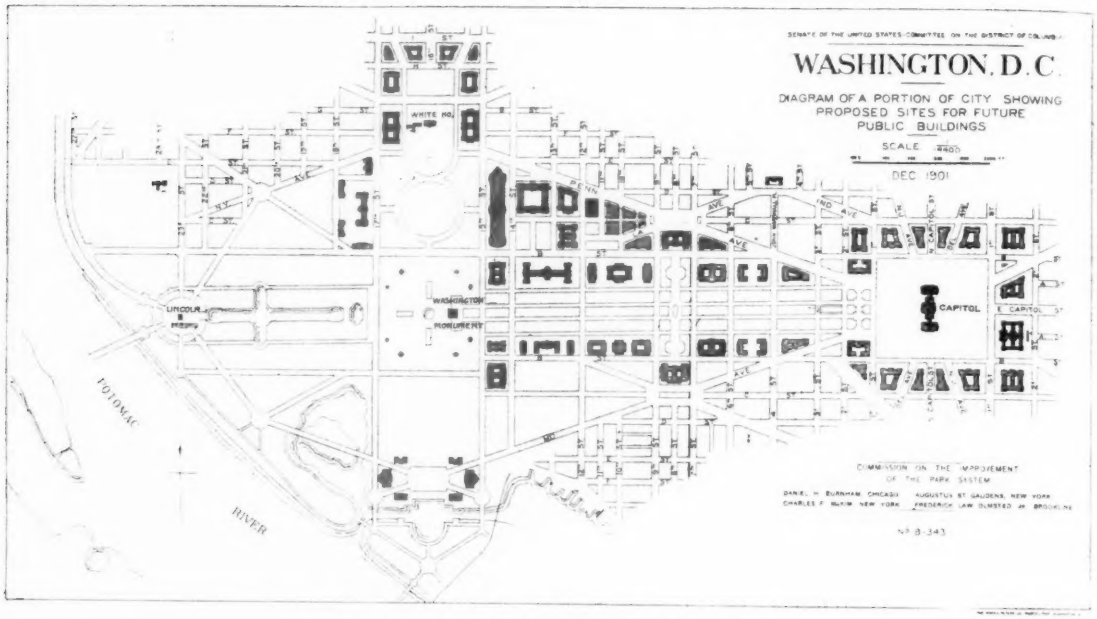
The dominant *motif* of the park is that of change from the normal conditions of town life, and this would be kept in view in both selection and development.

No definite rule as to proportion of park area to population can be laid down, but one acre to two hundred may be suggested as a minimum.

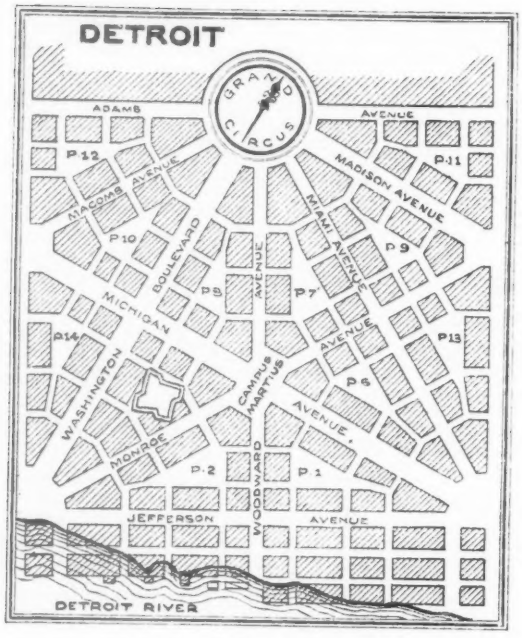
The success of a park scheme is absolutely dependent on a wise choice of sites. The late Charles Eliot laid down three principles of selection: First, that the land should possess, or afford opportunity for the creation of, interesting or beautiful scenery of one type or another; secondly, that it should be a tract ill adapted to streets and buildings; thirdly, that it should be related with as much symmetry as possible to the district it was desired to serve.

Out of these principles comes the rule that stream banks and the low-lying ground adjacent to them should be reserved.

The boundaries of a park should, if possible, extend far enough to include a complete natural landscape, so that it shall as far as possible appear of indefinite extent, while any features of special interest will amply excuse deviations from the general limits.


WASHINGTON, D.C.
DIAGRAM OF A PORTION OF CITY SHOWING PROPOSED SITES FOR FUTURE PUBLIC BUILDINGS
SCALE
DEC. 1901
WHITE HO.
WASHINGTON MONUMENT
LINCOLN MEMY
CAPITOL
POTOMAC
RIVER
COMMISSION ON THE IMPROVEMENT OF THE PARK SYSTEM
DANIEL H. BURNHAM, CHICAGO AUGUSTUS ST. GAUDENS, NEW YORK
CHARLES F. MCKIM, NEW YORK FREDERICK LAW OLMSTED JR. BROOKLINE

From "Civic Development in the U.S.A.": *Architectural Review*, June 1908.



GOVERNOR AND JUDGES' PLAN, 1805–06.

CHAP. XVIII.—PARK DEVELOPMENT.

The task here is to preserve and emphasise natural characteristics, though the entrances will demand formality, more particularly where they mark the transition from the definite and formal city streets. The park being developed to present the sharpest contrast to the artificiality of the city, the utmost caution should be observed in admitting buildings into its area. Shelters and restaurants are necessities, but they should be as inconspicuous as possible, and no other building should be admitted. Statuary also has no place in rural parks; zoological and botanical gardens are at variance with their purpose, but there is no reason why provision should not be made for them in conjunction with a public pleasure-ground.

The object of the park is to enable everyone to keep in touch with all the varied beauties and interests that Nature provides.

CHAP. XIX.—TEMPORARY AND OCCASIONAL DECORATION.

The purpose of this is to express the people's emotion when moved by a common impulse. It must be spontaneous, but a wise co-operation will enhance its effect. This co-operation may be secured by placing various sections under the direction of a number of artists, or by appointing one or more to prepare a scheme for the whole. The conditions vary so greatly that no general rules can be laid down. Will it be seen mainly at night or in the day-time, on land or on water, in a region of sunshine and abundant flowers, or where storms are so frequent that stands must have roofs and it will not be safe to plan the exposure of rich stuffs? Sometimes a temporary decoration may suggest a permanent improvement, but it should not deliberately simulate a permanent structure. It should, however, inspire the same earnest spirit, in which the whole question of the adjustment of the city to its city needs ought to be regarded.

In making this summary I have refrained from comment on the author's views, and therefore feel impelled to add a brief note on the few points in which they seem open to doubt. In Chapter X. the general suggestion is that radial highways are superimposed on a preconceived system of street plotting. This only shows the domination of the rectangular ideal for the city plan in the U.S.A. The Washington plan suffers from this, in the unhappy effect resulting from the numerous intersections that occur at an acute angle, unduly breaking up the frontage lines of the main avenues (see plan).

The plan on which Detroit was rebuilt in 1806 displays a method superior to that of Washington, and it is the more to be regretted that it was not extended on the same lines beyond the area then plotted, the rest of the city being on the monotonous rectangular system.

In Chapter XV. the views expressed are in direct opposition to those of Camillo Sitte, who considers that the "place" should be a closed-in area, a kind of open-air hall, while this work claims that its influence should extend as far as possible into the adjacent streets. The relative merits of these methods would form an interesting subject for consideration, and in certain cases it might even be found possible to reconcile both ideals, divergent as they appear.

Chapter XVIII. deals with park development almost entirely as a sociological problem, and even on this basis it appears to take rather a narrow point of view. Without embarking on a lengthy argument, one may ask why the desirability of Epping Forest should prevent our taking pleasure in Kensington Gardens, or why Paris should not possess a Versailles as well as a Fontainebleau.

H. V. LANCHESTER [*F.*].

INTERNATIONAL CONGRESS ON TUBERCULOSIS, WASHINGTON, 1908.

Brompton Hospital for Consumption: Heatherside Sanatorium at Frimley, Surrey.

A notable triumph for British medicine in relation to the treatment of consumption has been won at Washington by the essay of Drs. Arthur Latham and Paterson, and for British hospital designing in connection therewith by the drawings and model of the Frimley Sanatorium designed by Mr. Edwin T. Hall. *The Times* of 28th October reported that practically all countries were represented by exhibits, and that the Brompton Hospital Sanatorium (Frimley) was considered worthy of the first prize at the Congress. Illustrations of the model and a short description of the building may be of interest to members, who may remember that at the Milan International Exhibition of 1906 the jury awarded Mr. Hall two gold medals for his designs of executed works.

The sanatorium consists of eight groups of buildings. Of these four are placed near the road; the remainder are shown on the model, and consist of—

The patients' wards and the administration.
Assembly hall, dining-rooms, kitchen, and stores.
Medical officers' residence.
Nurses' home.

The planning is entirely original, differing from the usual type of sanatorium in many particulars. The types of plan usually adopted for patients are either (*a*) that of a large hotel, like some well-known German institutions; (*b*) a military barrack of many stories, of which many examples exist on the Continent; or (*c*) a building with short centre and long wings set at a wide angle, the rooms facing about S.E. and S.W.; or, again, (*d*) simply long straight buildings with rooms facing south.

The many sanitary objections to *a* and *b* are at once evident, and for a large sanatorium *c* and *d* would be inconvenient by reason of the great length of the building. Frimley, it will be seen, differs from all of these.

The main building is designed for 100 patients, but is capable of holding more. The centre is a rectangular building, containing the main entrance, the consulting room, administrative offices, wards for observation cases, and day rooms. From this centre radiate four pavilions, so planned that every room faces S.S.E. or S.S.W.; every patient has a direct and uninterrupted view from his ward, and no ward is more than 55 yards from the centre.

Each pavilion is of two stories, and the whole form eight separate units for classification, each pair having its detached and centrally placed sanitary block, containing bathrooms, lavatories, w.c.'s, and sink-room. Two of the pavilions are connected with the centre by corridors of fire-resisting material, glazed on both sides, and having glass roofs for further protection against the spread of fire.

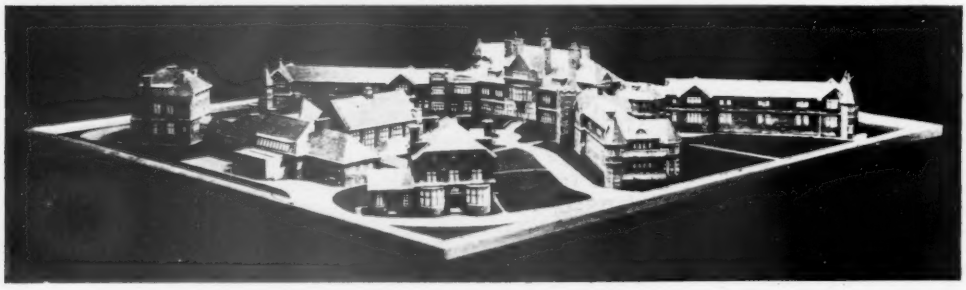
All ground-floor wards open directly on to tiled terraces, on which the beds can be wheeled out. All the largest wards on first floor have similar balconies.

The other public rooms are 100 feet to the north, and consist of the following:—

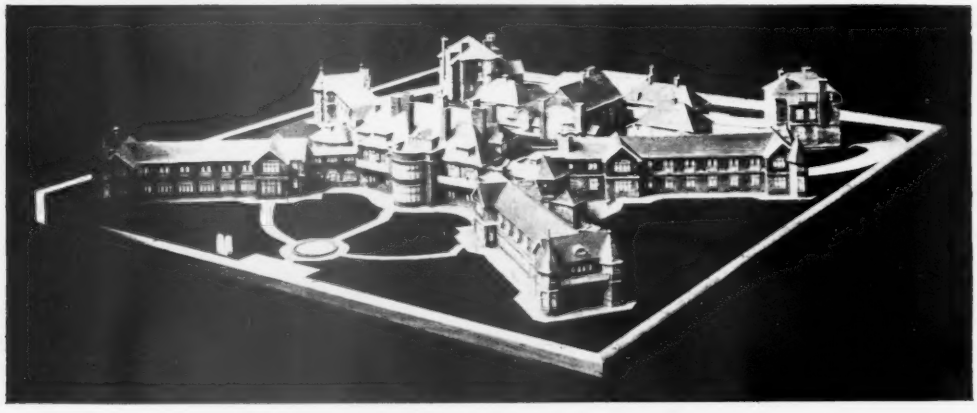
The assembly hall, which may be said to be all of glass above the sill level.

There are two dining-rooms, with windows or doors on all four sides: each has its service-room attached. These are close to the kitchen and scullery, which are internally of glazed bricks, and fitted with range, steam caldrons, &c. Adjacent are stores and servants' rooms. Covered ways connect this block with the medical officers' residence and the nurses' home, each a self-contained residence, with sitting-rooms and a separate bedroom for each, bathrooms, &c.

The exterior of all the buildings was designed so as to remove any idea of a hospital and to give the place the appearance of a large comfortable country home. The buildings are of red brick with stone dressings, red tile hung upper stories, and brown tile roofs. All woodwork is painted white.



View from north-west.



View from south-east.

BROMPTON HOSPITAL FOR CONSUMPTION.

Model of the Sanatorium at Frimley. Mr. Edwin T. Hall, Architect.